INSIDE: LAMBORGHINI DIABLO CUTAWAY!

FIRST ROAD TEST: '91 PONTIAC FIREBIRD

FAMILY/SPORT SEDANS: FORD TAURUS vs. CHEVY LUMINA vs. EAGLE PREMIER

MOTOR TREND

THE WORLD'S AUTOMOTIVE AUTHORITY

JUST TESTED: MERCEDES 300E 4MATIC
HONDA CIVIC EX
SAAB 900 SPG

RANGE ROVERS ACROSS THE GREAT DIVIDE

MAY 1990

$3.25 U.K. £1.75

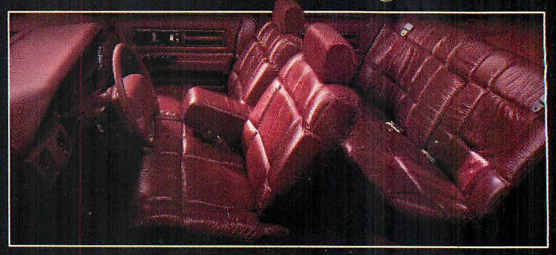
AWESOME!

202-MPH LAMBORGHINI DIABLO

The time has come for a new kind of full-size luxury.

You're looking at the next generation of the best-selling full-size car of all time. The car with more total room than almost every luxury sedan sold in America. At any price.

In fact, this is **the most spacious Caprice of all time.** And it has more standard features than many higher-priced cars.

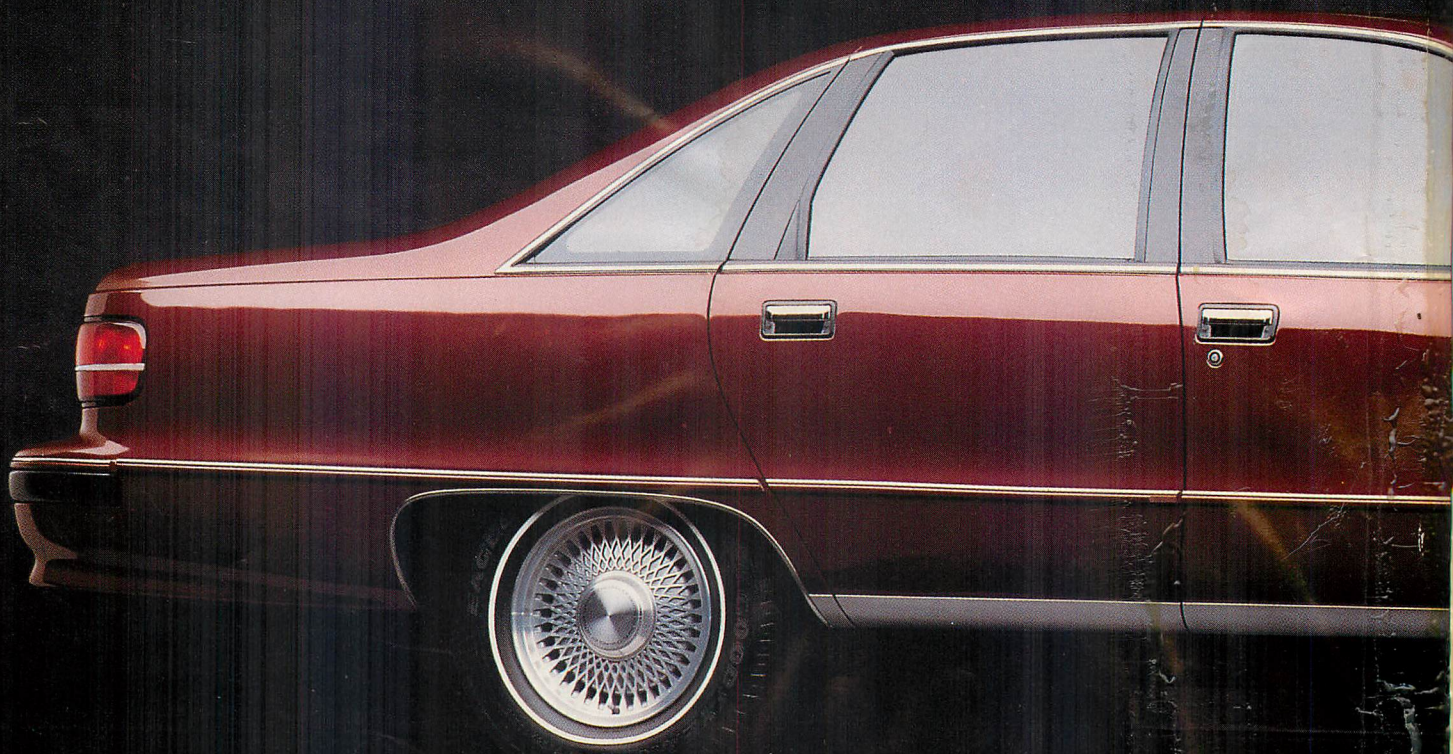


Walk around the new Caprice. Enjoy the sleek contemporary shape. But don't let it fool you. **Caprice is even longer than last year. And roomier than ever before.**

And it shows from the solid steel bumper to the 20.4-cu.-ft. trunk that holds four golf bags and more.

Open the door... and prepare to be impressed by its six-passenger interior. And by standards of luxury you won't find in many more expensive cars. Like durable cloth seats with ***Scotchgard*™ Fabric Protector.** Or you can

The 1991 Chevrolet Caprice. Prepare to be impressed.



GM *See your Chevrolet dealer for terms of this limited warranty. Chevrolet, the Chevrolet emblem and Caprice are registered trademarks of the GM Corp.
©1990 GM Corp. All Rights Reserved. Let's get it together...buckle up.

choose to sink deeply into the classic richness of leather seating areas. An option well worth the indulgence.

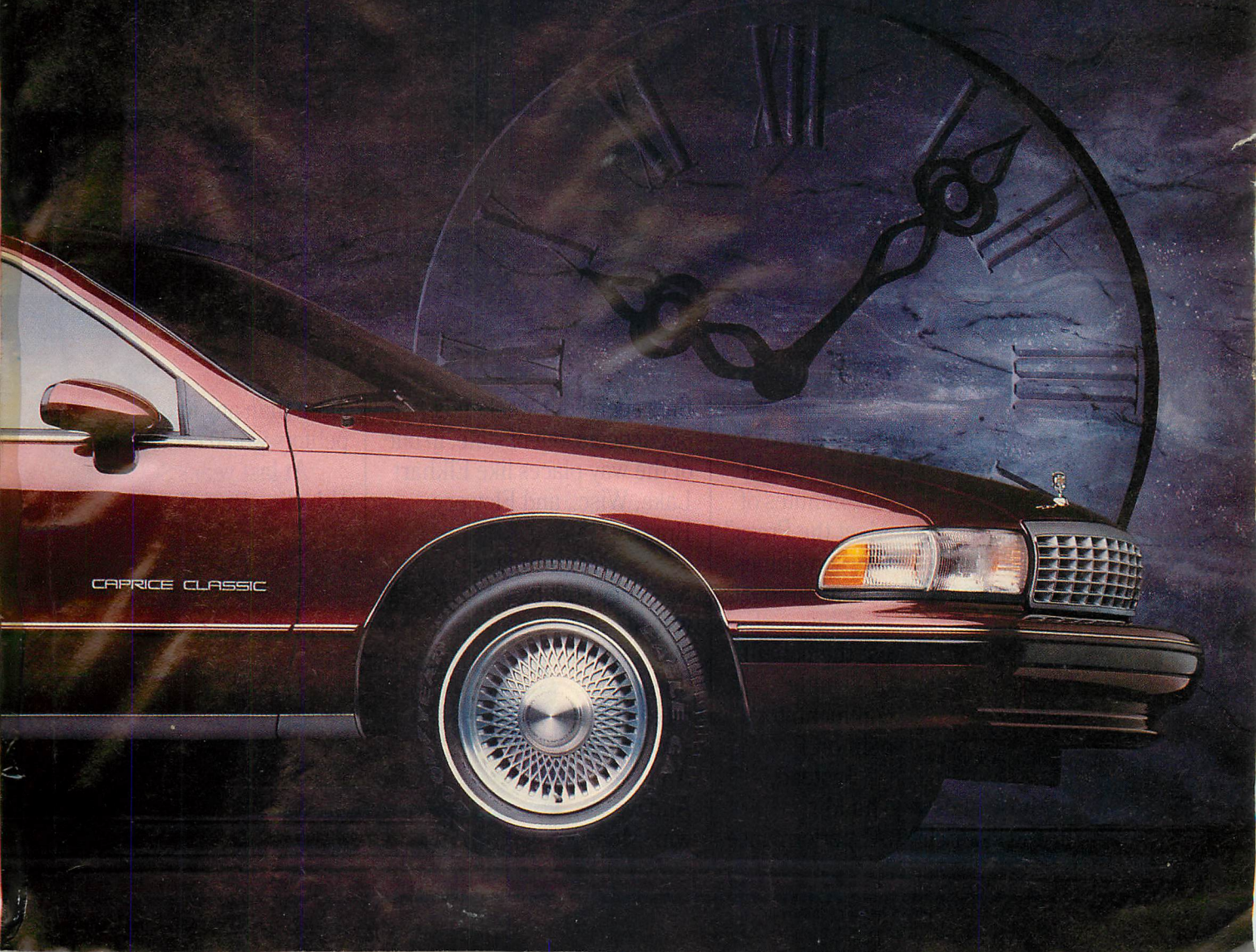
Look closer. You'll find we kept **the power of a V8 engine** and the exceptionally smooth ride that a full frame and **rear-wheel drive** offer. And added innovations like gas-charged shocks to make this **the**

quietest, most comfortable Caprice ever. Then provided new safety equipment like a driver's-side supplemental inflatable restraint system and the all-weather confidence of **four-wheel anti-lock brakes.** Standard.

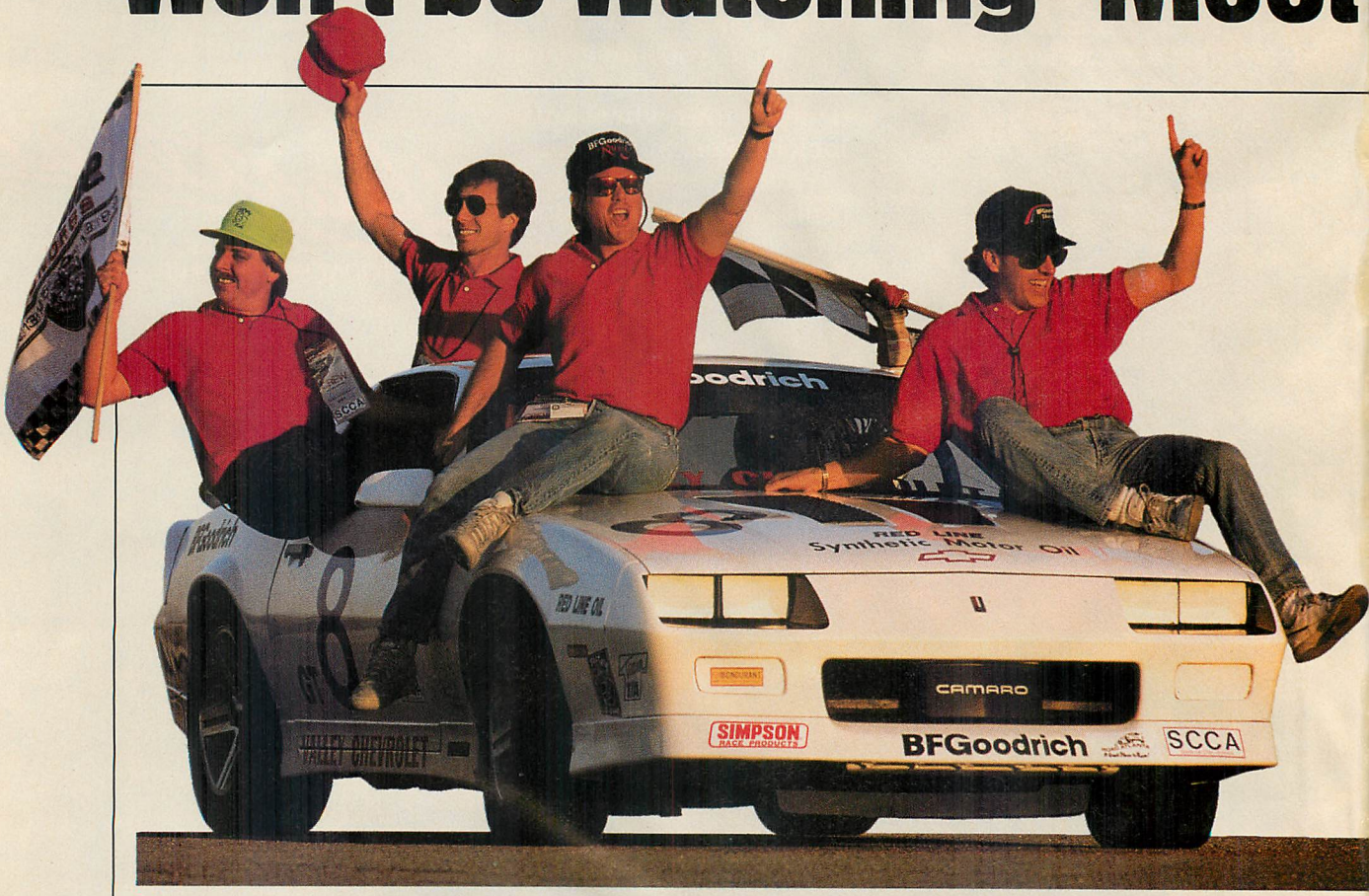
Finally, to prove Caprice is built to last through time, we back it with a **3-year/ 50,000-mile Bumper to Bumper Plus Warranty,*** including coverage for 6 years or 100,000 miles against body-rust-through.

For more information regarding the new Caprice, please call **1-800-879-1991.** Better yet, drive it, and have one of the most rewarding times of your life.

THE Heartbeat OF AMERICA IS WINNING.
TODAY'S CHEVROLET

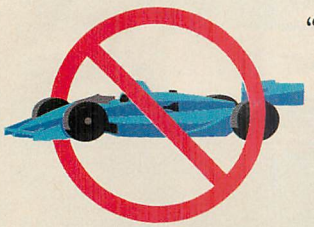


Why a Lot of BFGood
Won't be Watching "Meet



■ Boris Said III and his crew won the 1989 SSGT national championship at Road Atlanta on Comp T/A street tires.

We don't wash windows, we don't mow lawns and we never get to see even the first five minutes of "Meet the Press." (We sometimes vote in national elections without the benefit of a single commentator's opinion.)



■ Indy's got glamour, but racing our street tires is what makes them so good.

Instead, those of us who build BFGoodrich® T/A® performance tires spend our weekends out of doors, out of state, in out of the way places like Elkhart Lake, Wisc., and Flowery Branch, Ga.

We do this because we believe the best way to build better street tires is to race our street tires. And we do. And we win. More often than any of our competitors would care to mention.

At last year's *SCCA* Valvoline Runoffs, Comp T/A®

■ Dave Jolly's LuK Clutch Challenge champion Mazda MX-6 GT.

© 1990 UGTC *Tires shaved to racing depth.

rich® Tire Engineers the Press" This Weekend.

■ In 1982, Comp T/A tires scored the first class victory at LeMans for DOT-approved street tires.

tires won more national championships than any other street-tire brand.* In the IMSA Luk Clutch Challenge, the premier American racing series for street tire-equipped cars, Comp T/A tires won 9 of 10 poles and 9 of 10 races.

And Corvette owners might be interested to note that at the National Council of Corvette Clubs convention, Comp T/A tires won an amazing 19 of 20 classes, including the Quadra Challenge Trophy, Corvette's "King of the Hill" award. (With success like this, it's easy to understand why so many Corvette owners are switching to Comp T/A tires—and why the fastest German sports cars sold in this country already have them as standard equipment.)

Now, make no mistake. We mean no disrespect to the companies that build pure racing slicks for glamour events like the Indy 500 and the 24 Hours of LeMans. We win our share of IMSA GTP events with racing slicks of our own. But even this involvement is just a test-bed for new street-tire technologies. When we won the IMSA GT class at LeMans in 1982, it was on DOT-approved street tires, the first and only time the feat has been accomplished. And when we set a record recently at Indy? It was with the same Comp T/A HR4 street tires you can buy.

We could go on and on, but we figure you've got the gist of it by now. We miss a few cookouts and we probably won't catch "Les Miserables" until it hits the Akron Community Playhouse.

But we do what we do because we love what we do. And when Sunday night rolls around, we get the satisfaction of seeing the results in black and white.

■ Roger Johnson has won eight consecutive Pro Solo championships on Comp T/A street tires.

■ Comp T/A VR: (left) Race-winning ultra-high performance in 13-, 14- and 15-inch sizes.
■ Comp T/A ZR: (right) Even higher performance in 16- and 17-inch sizes for Corvette, Ferrari, Porsche and more.

BFGoodrich
T/A® Tires

EVERYTHING HAS TO BE PERFECT

Just two hours until race time. Indy car chief mechanic Larry Curry goes over every detail with the crew. One more time.

Curry knows, to win, everything has to be perfect. Every element of the car has to be "the absolute best I can get." From the 650-plus h.p. Buick V-6 engine to the motor oil that keeps it running.

"There's no room for compromise," Curry says. "As soon as you settle for second best, you settle for second place."

Curry uses high performance Valvoline® motor oil. And over the past ten years, 7 out of 10 Indy 500 chief mechanics also raced with Valvoline.

"You can't buy a better motor oil."

PEOPLE WHO KNOW USE VALVOLINE™

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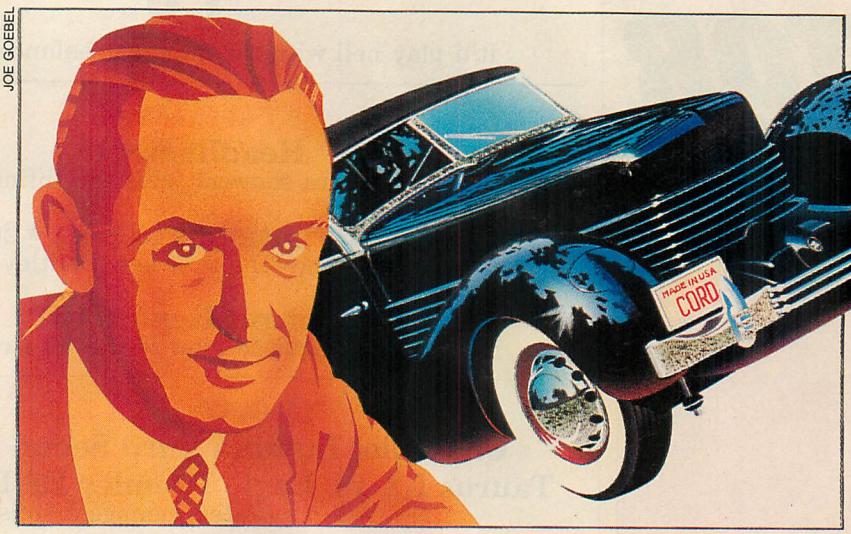
ROADSIDE

BY JACK R. NERAD

A SAD DEATH, NEW LIFE, AND COMMENT

Gordon Buehrig died in January, and it was a sad day, not only because the automotive world lost a gentleman, but also because his death stilled the voice of a veteran who had an important message for today's auto designers. The message? Don't be a slave to the wind tunnel.

Perhaps no auto designer, with the possible exception of Raymond Loewy, had better credentials to back up his words than Buehrig. His name might not be familiar to you, but his work undoubtedly is. If he designed no other car than his masterpiece, the Cord 810, his place in automotive history would be secure, but he had a hand in many other successes during his 40-year career in the industry on projects ranging from luxury cars to station wagons.



JOE GOEBEL

THE WIND TUNNEL IS A COMPLETELY IMPERSONAL GADGET WITHOUT A SOUL

Fascinated with cars almost from his birth in Mason City, Illinois, Buehrig got into the auto business in the mid-'20s and worked his way through a series of independent coachbuilders before joining Packard as a body draftsman. Even at Packard, however, he was simply translating others' ideas into full-size drawings, so he left for a design job with General Motors' Art and Color Section, which had recently been founded by another legendary designer, Harley Earl. From there, Buehrig joined the Auburn-Cord-Duesenberg combine, where he was to pen his most memorable designs, including the famous Cord 810, which sent shockwaves through the industry in 1935.

You can see the point of Buehrig's message in all his work. I don't know what the Cord 810's coefficient of drag is, and I don't care. It's a design that came from the heart and guts as much as from the head, and it's a design that will turn more heads than any current model you can name. Buehrig's feeling, and one I share, is that today's designers use the wind tunnel as a crutch, following the dictates of aerodynamics to the detriment of individuality. He said, "[Wind tunnels] give you the same answers in any language—English, German, Japanese. The wind tunnel is a completely impersonal gadget without a soul. Its goal is to produce an object that will go through the air best. And that shouldn't be the total purpose of an automobile."

Indeed, it shouldn't be. For more than 100 years, the best automobiles have delighted the senses both in their performance and in their form. That's what Buehrig preached in his career, and that's what he stood for at the time of his death. We'll miss him.

News Note: General Motors gives green light to new Camaro and Firebird. Comment: Well, that's good news! How could there ever have been any doubt that the public wants a new Camaro and Firebird? The amazing thing is that there was doubt within General Motors. One has to wonder what those highly compensated execs are thinking about.

The ones who were ready to kill Camaro/Firebird cited three reasons to axe the performance car twins: GM's current cost-cutting, future fuel-efficiency standards, and the dwindling market for the aging pony-cars. Let's look at each in turn. First, certainly GM can save some money by not developing new products, but that would simply accelerate the free-fall of its market share, which is already tobogganing downhill at a rapid rate. Second, fuel-economy standards in the future will be tough, but somehow the Japanese have been able to combine fuel efficiency with high performance. Third, is the market for performance cars like Camaro/Firebird really dwindling, or are corporate planners looking at a sales curve affected in no small measure by the age of the current product? Camaros and Firebirds haven't changed substantially since 1982, yet the combined sales of the two still totaled 150,000 units in 1989. This indicates a whole lot of "hang-in-there" factor among the fans of these two cars, fans who haven't been rewarded with much to cheer about over the last several years. I've got to believe that all-new Camaros and Firebirds could double that annual sales figure when they finally come to market. Can GM afford to walk away from that potential? If it can, it might as well quit the car-making business altogether. MT

NEW! From the maker of Passport and Escort

Finally, a radar detector so advanced, you'll never be bothered with a power cord

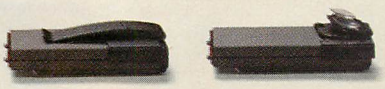
Self-powered SOLO

Until now, high performance radar detection required a messy power cord. Plugged into your car's lighter. Dangling across your dashboard. And tangling in your pocket.

Finally, there is a better way.

No power cord

Solo is a totally new concept in long-range radar detection. All you do is clip Solo to your visor or windshield, and switch it on. It's that simple.



Solo comes complete with all accessories, including visor and windshield mounts that instantly conform to any car, but fold flat for convenient carrying. Both designs are patented.

You'll never need a power cord. Unlike any other radar detector, Solo has its own power source—inside its compact magnesium housing (Solo is ¾" x 2¼" x 4½"—just 5½ ounces).

How it works

After years of research, our engineers (who also designed Escort and Passport) developed circuitry fifty times more efficient than conventional detectors. This design provides long-range radar warning for 200 hours on a single 9 volt battery.

If you drive one hour a day, you won't need to replace Solo's battery for over six months. (Even if you drive two hours a day, you'll get over three months.)

WHAT THE EXPERTS SAY

"No other detector manufacturer has anything even close...Solo moves the state of the art to a higher plane."
BMW Roundel

"The most user-friendly detector yet... we fell in love at first beep."
AutoWeek

No compromise performance

With Solo, you get long-range radar warning with no hassles. And you never have to worry about Solo's performance.

Solo maintains all of its radar warning capability over its entire battery life. Solo is even smart enough to turn itself off if you forget. When it's finally time to replace the battery, Solo will tell you five hours in advance.

Order today and try Solo for 30 days at no risk

Call toll-free 1-800-543-1608

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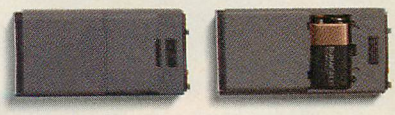
Then just drop in another lithium battery for 200 more hours (or use a standard alkaline to power Solo for 80 hours). Solo costs less than three cents per hour of use.

Experience the freedom

You'll slip your Solo into its leather case and carry it in your shirt pocket. In your car, just clip Solo to your visor and switch it on.

It's so easy, you'll never go without radar protection again. And now a special offer lets you try Solo for 30 days at no risk.



Solo's super efficient design never needs a power cord. A 9 volt battery provides 200 hours of power—several months of radar protection for most drivers (at a cost of only three cents an hour).

We GUARANTEE your satisfaction

Solo is available from us only, and comes complete with our Digital Key anti-theft system, all mounts and accessories, two batteries, and a one year limited warranty.

Here's our offer. Try Solo. If for any reason you're not completely satisfied, just return Solo within 30 days. We'll refund all your money and even pay your return shipping cost. You can't lose.

Once you try self-powered radar protection, nothing else will do. Order today.

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The legendary 1938 Alfa Romeo 158 "Alfetta." With its successor, the 159, winner of back-to-back world championships in 1950 and 1951.

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Coming soon: A legend for the new age. The five-passenger Alfa Romeo 164 high-performance luxury sedan. With an Alfa Romeo Assurance Program that even pays for things like wiper blades. See your dealer for details. For more information, call 1-800-245-ALFA.

Alfa Romeo. The legendary marque of high performance.

LETTERS

Big Deal on Z28

Oh, so Chevy finally decided to drop the IROC name from the Camaro; big deal. This car is nothing more than a '90 model with cheap-looking add-ons.

I guess Chevy was reading the same book Ford was in 1986. Are we going for the Mustang GT look? Hmmm, deep airdam and the fake brake cooling ducts, very Ford, with a touch of Daytona Shelby. And the rear spoiler looks like a shortened version of the one on the '60s Roadrunner.

At least Ford's ground-effects on the Mustang look somewhat like part of the car. Hey, Ford, is there a 351 Windsor anywhere in the Mustang's future?

Michael Rivera
Lilburn, Ga.

Has the heartbeat of America stopped beating? While reading the March issue, I noticed a bright-red RS Camaro with some horrible-looking aftermarket spoilers. After reading the article, I was left in a state of shock. That's a Z28?! Has Chevrolet lost its nuts and bolts? Why did it ruin the best-looking American sports/muscle-car ever made?

Obviously, the bigwigs at Chevy are still mourning the loss of the rights to wear the IROC badge. If they used their brains, they would carry the '90 model over to '91 and delete the stripes and letters and add-on Z28 emblems in place of the IROC emblems. The Z28 isn't lacking in performance, but why did they add Mustang lookalike airducts on the airdam. And what's with the trimmed-down F40 rear wing? They even had the nerve to change the awesome Gatorback tires!

As the proud owner of an '87 IROC 350, I'm sorry to say I do not plan on buying a new one. I hope I'm not the only Camaro enthusiast who feels this way. I'm sure I'm not. I hope Chevrolet will remove its black veil before the '91 model year begins production.

James Sousa
Woburn, Mass.

Yugovette? Coryugo?

What would happen if you install a Chevy Corvette ZR-1 LT5 powerplant into a Yugo engine bay?

M. Adler
Jackson Heights, N.Y.

JOE GOEBEL

In the Eye of . . .

Where do you get off stating or even implying that the 308/328 was the prettiest production car Ferrari ever built? Are you forgetting the awe-inspiring 512BB, which was the benchmark for the 308/328, or the luscious, heart-breaking lines of the 250GT Lusso, not to mention the classic pose of the 365 GTB/4? Our former president can probably remember these beauties, why can't you?

A Ferrarist
Nashville, Tenn.

I think it's time for Mr. Dron to have a physical. If there's nothing wrong with his heart, the problem may be his adrenal gland. The sound of the Ferrari 3-liter V-8 is one of the sweetest sounds on the planet. To many of us who cannot afford the current $200K-plus entry price of a 12-cylinder Ferrari (or who don't get paid to drive around in such cars), the turbinelike whine is a feast for the ears and the soul. I often find myself dropping down a gear just to hear it more clearly. The off-throttle rumble alone is worth the price of admission.

Mr. Dron: Sorry if it doesn't stir your soul. That's your loss. Please don't speak in such generalized terms. Your opinion isn't universal. There are many of us whose hearts are more open, and hair more sensitive, than yours.

Alan S. Caplan
Wakefield, Mass.

And Now, a Word About ICOY

Are you joking? "Dollar for dollar," the Nissan 300ZX is a better value than the Mazda Miata? Don't you mean "advertising dollar for advertising dollar?" Your analysis indicated that the Mazda ranked close or better than the Nissan in all categories except flat-out acceleration, yet costs nearly a third the price. I hardly think the average consumer feels the main criterion for Import Car of the Year is dragstrip performance, especially when it takes twin turbos to make it happen.

For my dollars, I'd rather experience the Mazda Miata and use the extra $20,000 for a new boat or a new 4x4 or a down-payment on a summer cottage or . . .

D. Kevin Jones
Indianapolis, Ind.

According to your Car of the Year rules, " . . . we compare each competitor's performance to that of a specific peer car representative of the class." Taking this into account, we find it difficult to comprehend how you chose the Nissan 300ZX Turbo as Import Car of the Year over the Mazda MX-5 Miata. Although the Nissan is an excellent automobile, we feel the award should have been given to the Mazda. We arrived at this due to the fact that the Miata has no clear competition in its respective class, while the 300ZX has such stiff competition as the Mazda RX-7 Turbo and Toyota Supra Turbo.

Henry S. Thompson
Thomas W. Scannello
Bryant College
Smithfield, R.I.

Although the Miata placed close to the 300ZX in the performance categories, we were not judging the Nissan against the Mazda. The cars are scored according to their placement in their specific class, objectively and subjectively. Dollar for dollar in its category, the 300ZX is the best value,

RESERVE OFFICERS' TRAINING CORPS

PHILLIP WORSHAM
213 Orchard Street
Justin, Oklahoma 10075

CAREER OBJECTIVE	An entry level position in an Electrical Engineering research or design firm.
EDUCATION	Bachelor of Science in Electrical Engineering, May 1987, Williamstown University; Justin, Oklahoma
EXPERIENCE	**Summer Internship** Summer 1986 Central Power and Light, Justin, Oklahoma Interned in the Power Transmission Department
HONORS	Dean's List
ACTIVITIES	Varsity Soccer Intramural Softball
REFERENCES	Available Upon Request

LIEUTENANT JACK TODD MILLS
285 Maple Street
Justin, Oklahoma 10075

CAREER OBJECTIVE	An entry level position in an Electrical Engineering research or design firm.
EDUCATION	Bachelor of Science in Electrical Engineering, May 1987, Williamstown University; Justin, Oklahoma U.S. Army Signal Corps Officer Basic Course, September 1987
EXPERIENCE	**Training and Operations Officer,** U.S. Army Reserve Officers' Training Corps, Williamstown University Planned, organized, and executed training for battalion of 110 cadets. **Communications Platoon Leader,** Headquarters Troop, 1-17 Cavalry, 82nd Airborne Division, Fort Bragg, NC Responsible for the training, discipline and welfare of a forty-man platoon.
HONORS	Dean's List Distinguished Military Graduate Commandant's List, Officer Basic Course
ACTIVITIES	**Army ROTC basic and advanced camps** U.S. Army Airborne School Varsity Wrestling, Intramural Football
REFERENCES	**PROFESSOR OF MILITARY SCIENCE** Lieutenant Colonel Karl Dunn Williamstown University College of Liberal Arts CMA 1.702 Justin, Oklahoma

WHICH ONE WOULD YOU RATHER WRITE?

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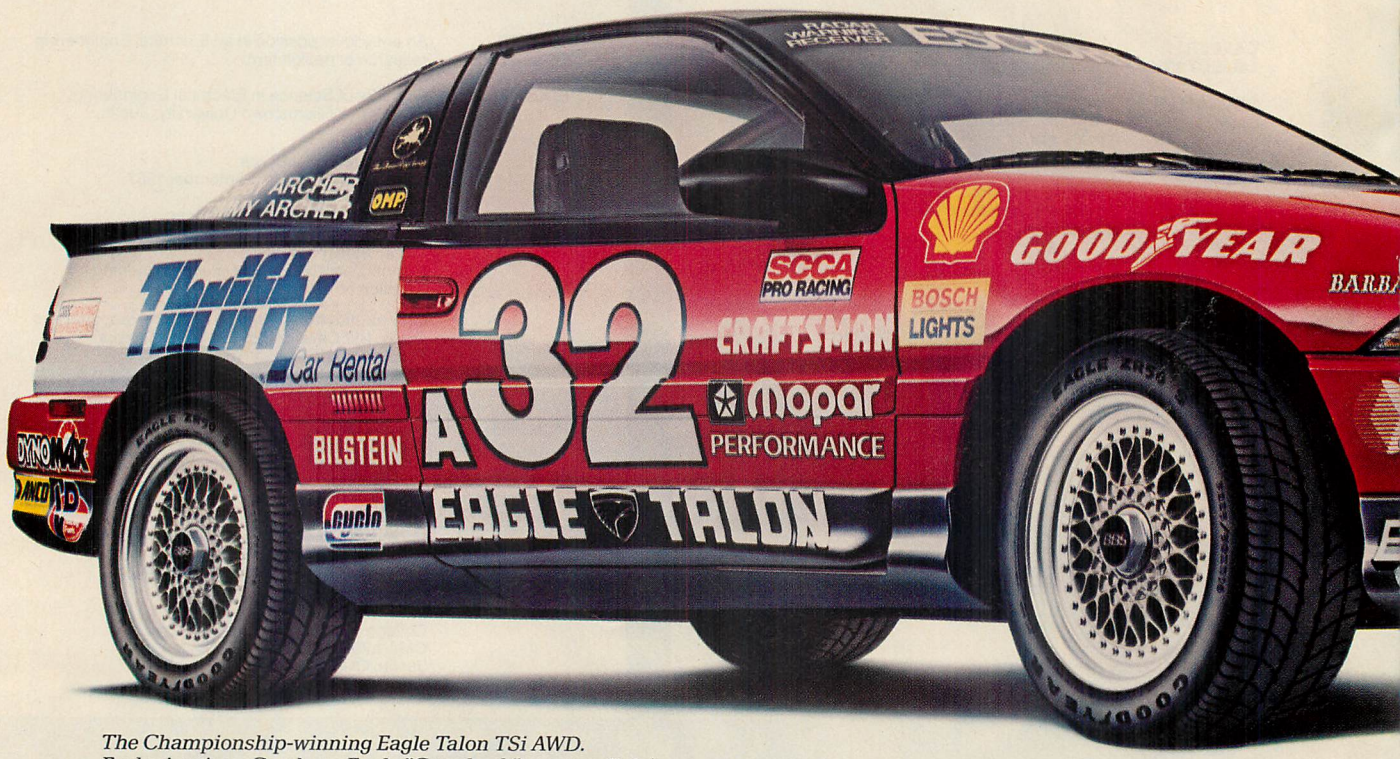
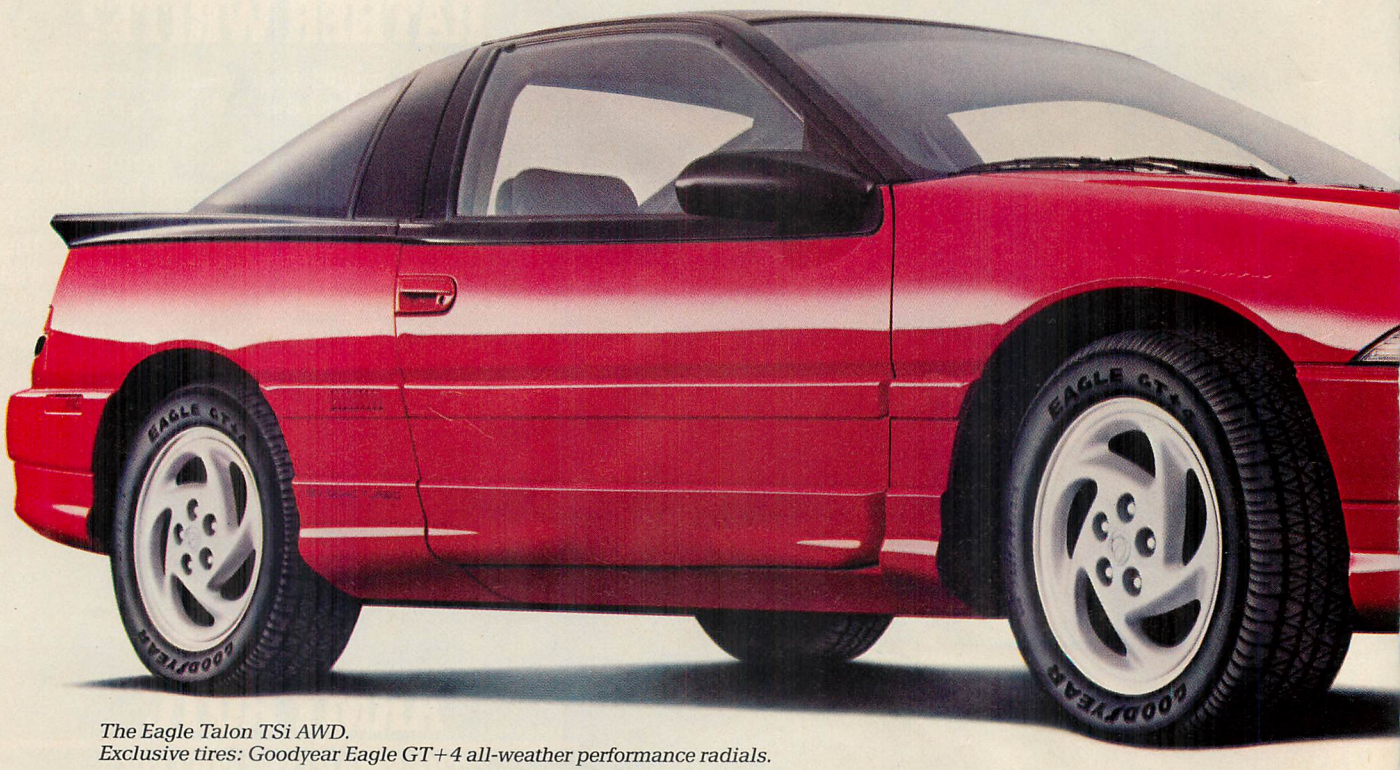
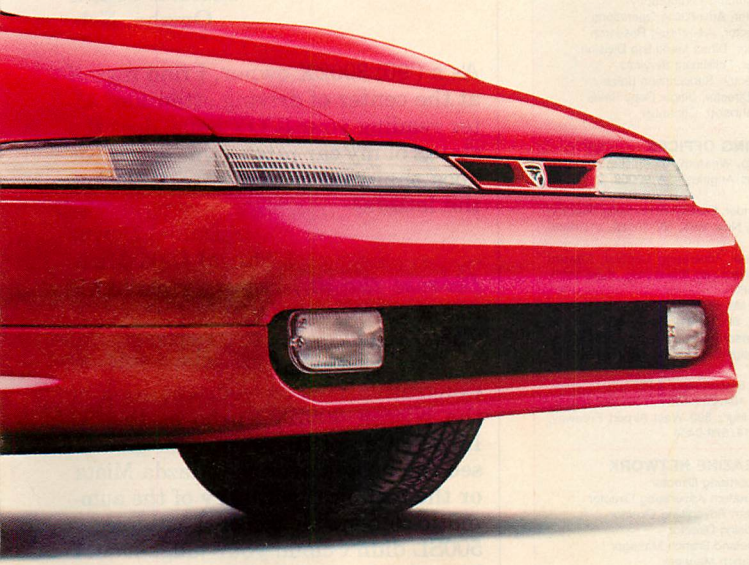


The Championship-winning Eagle Talon TSi AWD.
*Exclusive tires: Goodyear Eagle "Gatorback" street radials.**

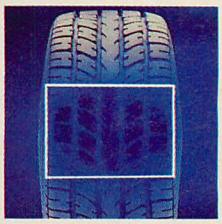


The Eagle Talon TSi AWD.
Exclusive tires: Goodyear Eagle GT+4 all-weather performance radials.

E A G L E S.



Both of these Eagle Talons get their grip from one, and only one, make of tires: Goodyear Eagle street radials.*



A Goodyear Eagle "contact patch." Where an Eagle demonstrates its superiority.

When the Eagle Talon was designed, its engineers cut no corners.

Hence the fact that every new Eagle Talon TSi AWD comes on Goodyear Eagle GT+4 high-performance radials. Exclusively.

Which is one of the reasons the Talon handles so well. Especially in the corners.

In fact, in independent testing, the Eagle Talon TSi AWD out-performed its competition. And, in the slalom, it performed virtually the same in the wet as in the dry.

Credit its fully independent suspension. Its quick-ratio steering. Its all-wheel drive.

And its all-weather Eagle GT+4 radials.

The race-prepared Eagle Talons of Bobby and Tommy Archer also use just one make of tires: Goodyear Eagle street radials.*

And in 1989, the Archer brothers won the SCCA Endurance Championship.

All of which helps to prove there really is a difference in performance tires.

And that difference is a major reason why these Eagle Talons get their grip from the Goodyear Eagles. Exclusively.

**Tires shaved to racing depth. Before you race on Goodyear street radials, write The Goodyear Tire & Rubber Company, P.O. Box 9125, Akron, Ohio 44305 for preparation recommendations and procedures.*

GOODYEAR

The best tires in the world have Goodyear written all over them.

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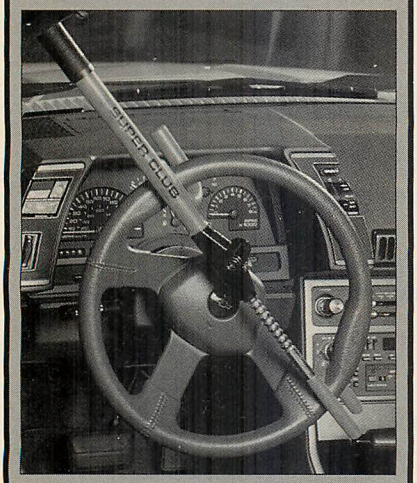

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LETTERS

as well as the greatest step forward in its respective class.—Ed.

The Nissan 300ZX is a wonderful winner! I just wonder why the 240SX was not in the running. I'd rank it 2nd! Next, I'd choose the Infiniti Q45, followed by the Toyota Celica. My only real disagreement with your ranking list is the Mazda Miata—it would do no better than 17 on mine! If it had been priced at $5000, I'd move it up a bit.

R.J. Rentz
Miami, Fla.

The Nissan 240SX participated in ICOY in 1989 and didn't change significantly to warrant entry into this year's competition. It finished in 3rd place last year, behind the Mitsubishi Galant and the Nissan Maxima.—Ed.

I love it! I just love it! Your choice for the '90 Import Car of the Year was right on! When I looked at the front cover of your March issue, my heart pounded because the 300ZX was going up against some pretty hefty competition. I thought the Lexus LS 400 and Infiniti Q45 would give the Z-car a run for its life, but I was enthralled and delighted when the Z won the title! I'm definitely not taking anything from the other vehicles, but the Z is the car all other sports cars will be judged by. Sure, there'll be other models that may come along and try to dethrone the king. Until then, the Z has crossed the finish line in the grandest of style!

Tomorrow, I will play the lottery.

Randall Collins
Omaha, Neb.

As a ('90) 300ZX owner, I find myself at the center of driving attention. After reading your ICOY issue, does the status of my car rate as this award, or does the word Turbo have to follow the letters?

Daniel Downs
Royal Oak, Mich.

Because the differences between the two are measurable, only the 300ZX Turbo can wear the ICOY crown.—Ed.

Congratulations on your selection of the Nissan 300ZX Turbo as the '90 Import Car of the Year. I'm glad to see the hoopla over the Mazda Miata or the technical wizardry of the automatic convertible top of the Mercedes 500SL didn't cloud your judgement. I haven't always agreed with your se-

lections, but thanks to your new scoring rules, it's hard to find fault with this year's winner.

John Chow
Vallejo, Calif.

It looks as if Nissan has really delivered on its promise with the 300ZX Turbo. The land that gave us Rodan and Godzilla has served up an exciting, new monster that was bred for modern times, but this one's no fantasy. It's aggressive enough to take on previous standard bearers, Porsche and Corvette, yet civilized enough to live with comfortably on a day-to-day basis, and it's all wrapped up in an extremely eye-appealing package.

Thank you, Nissan, for having the integrity to make good on your promise. Thank you, *Motor Trend*, for reminding us that some promises are still kept!

Iris Lee Pierno
Peekskill, N.Y.

I have no quarrel with your Import Car of the Year choice. It also made the top five on a list of cars in which you're least expected to survive an accident. Of the 19 cars you tested in ICOY, only four had automatic transmissions. Would you spend $2500 for a large-screen TV and then have to get up to change the channels by hand? Wake up, gumdrops, and smell the coffee. You're in the stone ages.

L. Barry
New York, N.Y.

Long-Lost XJ6 Sibling?

There's no easier way to make an elegant design than to copy an existing one. The Buick boys gave an XJ6 some flush headlamps and a flush grille and called it a Park Avenue. Come on, Buick. You made the Reatta a great design, so why copy Jaguar?

Steven Nofziger
Buhl, Ida.

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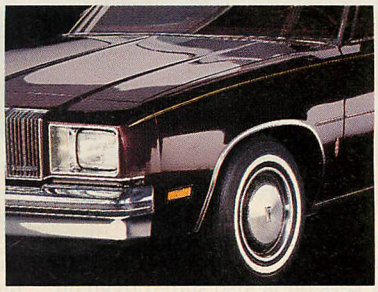
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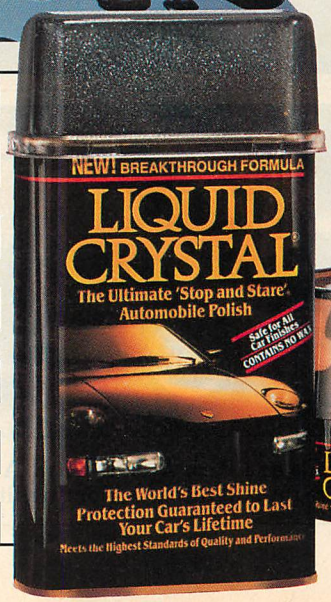

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TRENDS

EDITED BY BOB NAGY

PRIMERA PORTENDS NEXT INFINITI

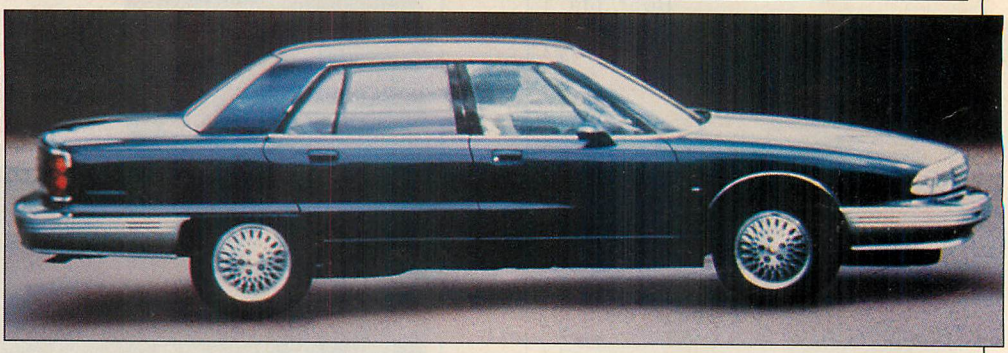
As we reported here earlier (Mar. '90), Nissan's exotic Primera showcar has gone into production in Japan, albeit with a number of not-so-subtle modifications. A version is also slated to go on sale here this fall. However, the latest information indicates it will not be as a replacement for the Stanza, but rather as the newest member of the Infiniti line, to be badged the G20.

Although the production Primera appears a good deal more traditional than the concept vehicle originally displayed at last year's Tokyo Motor Show, it still carries an impressive 0.29 Cd. Wheelbase on the well-appointed sedan is 100 in., and overall length is 173 in. The Primera's fully independent suspension has a familiar twin parallel link setup at the rear, but incorporates Nissan's unique multilink configuration in front, the first time this design has been used on a front-drive application. In Japan, a pair of DOHC 4-cylinder engines are available. Standard is a 110-hp 1.8-liter with single-point EFI, while the topline powerplant is a 150-hp 2-liter with multipoint injection. The slightly retrimmed U.S. Infiniti G20 variant will be fitted only with the latter engine, although no power figure has yet been released. Price for the new G20 is expected to be around $20,000.

SCOUPE SCOOP

Coming to Hyundai dealers this summer is the sportiest member of the family, the new Scoupe. This slick little 2-door is powered by the same 1.5-liter SOHC fuel-injected four used in the Excel and offers a choice of 5-speed manual or 4-speed dual-mode overdrive automatic transmission. Rack-and-pinion steering and power disc/drum brakes are standard, as is a 60/40 split folding seatback.

NEW NINETY EIGHT IN '91



JIM DUNNE/POPULAR MECHANICS

Oldsmobile will get its own version of the new corporate C-body platform in the '91 model year, and this is the car. Due to go on sale in mid-summer, this new front-drive Oldsmobile Ninety Eight will share most of its running gear, including a 170-hp 3.8-liter OHV V-6 and 4-speed automatic overdrive transmission, with the recently unveiled Buick Park Avenue and Park Avenue Ultra. Although decidedly rounder and more aerodynamic than its predecessor, the new Olds Ninety Eight still displays more traditional styling cues than its Buick counterparts.

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Source: Automotive News 12/18/89,"Pricing the '90 Models."

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TRENDS

INTERNATION

BY PHILLIP BINGHAM

DUANE KUCHAR

RETURN OF A LEGEND

For the first time in nearly four decades, Rolls-Royce Motor Cars has given the go-ahead for production of a real Bentley, a spacious, luxurious performance car with a powerplant and bodyshell quite distinct from any Roller's. Sitting on a wheelbase about 4 in. longer than the BMW 750iL's, the Bentley will take its styling cues from the Project 90 design exercise first seen at the 1985 Geneva Salon. To be based on the floorpan of the current Turbo R model, the new Bentley is expected to use Rolls' existing 6750cc V-8, but with new DOHC 4-valve heads designed and developed by Cosworth Engineering. Hooked up to the rear wheels via a 4-speed Borg Warner automatic gearbox, this likely will produce close to 400 hp and 500 lb-ft of torque! It should give the new Bentley 6.5-sec 0-60-mph capability and a top speed of 150 mph.

Indeed, to find the last Bentley truly distinct from a Rolls-Royce, you have to go all the way back to the 117-mph Continental of 1952-54, then the fastest production sedan in the world. During the following three decades, Bentleys became distinguishable from their Rolls-Royce counterparts only for what they lacked: Whereas the coveted Spirit of Ecstasy symbol stood proudly atop the radiator shell of Rollers, on otherwise similar Bentleys, it did not.

Sales figures betrayed the folly of this arrangement: Bentley's share of RR car production, which in the '40s was 75%, had shrunk to only 5% by 1982. In the six years since, the company's return to health can greatly be credited to the revitalization of the Bentley name, first with the Mulsanne model, then the Turbo R. Expected to start prototype testing this summer, the all-new car should further help the comeback cause.

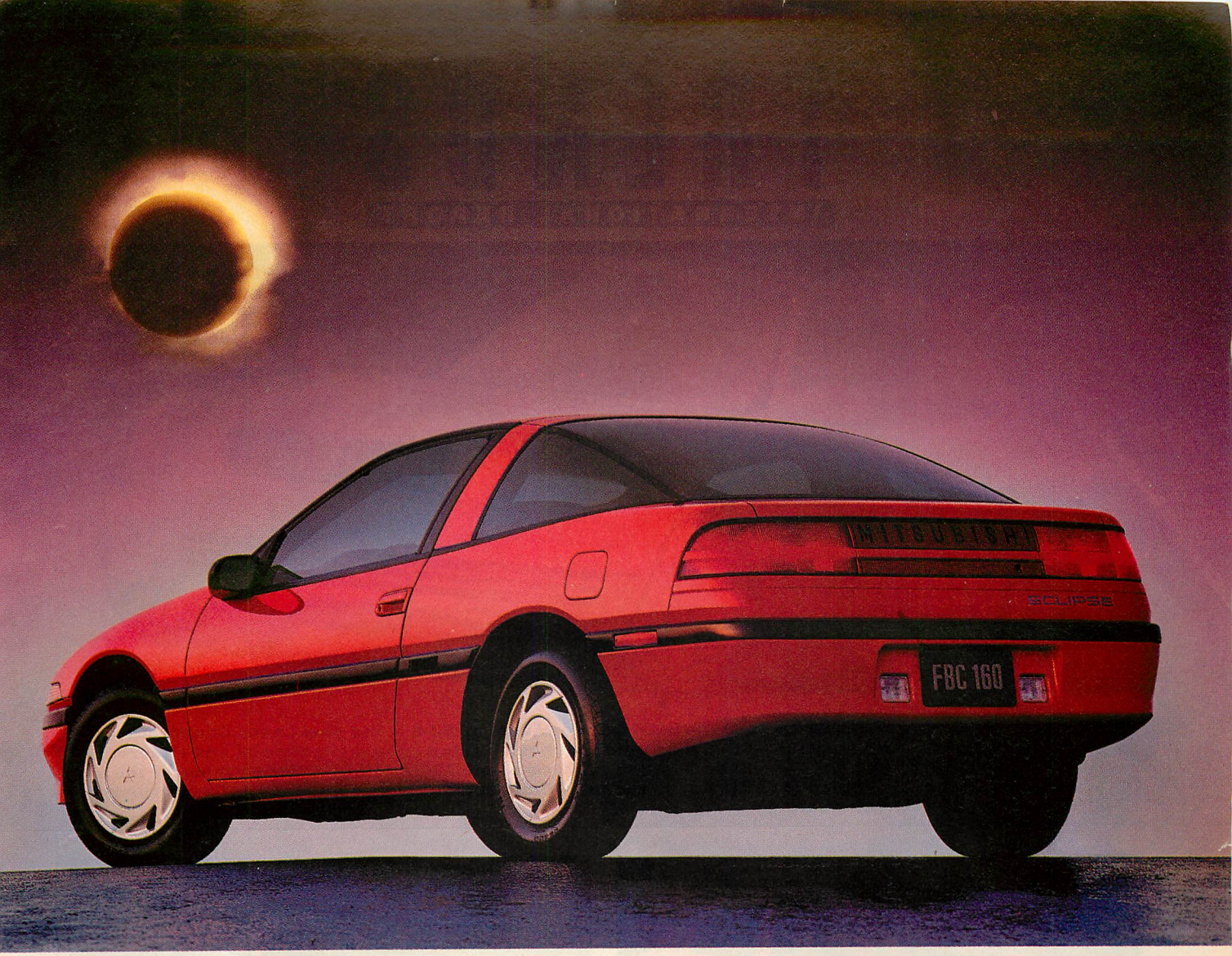
BABY BIMMER SPIED

HANS LEHMANN/HIDDEN IMAGE

This is the best photo yet of BMW's imminent new 3-series, seen for the first time bereft of disguise. The 4-door sedan will be complemented by a 2-door coupe.

Confirming earlier reports (Jan. '90), the photo reveals the baby Bimmer to be longer and wider than its predecessor, with a low, rakish hoodline and a high trunk. The body-colored front and rear bumpers now look like integral parts of the design, the side valances are tidier, the glass area increased, the rear screen more curvaceous, and the whole effect more apparently aerodynamic. Although the large kidney-shaped grille is flanked on the prototype by two pairs of circular headlamps, rectangular lenses could be used for production.

The new Three will be offered with 4-cylinder engines ranging from 1.6- to 2.5-liters displacement (some with 16-valve heads), and straight-sixes of 2.0 and 2.5 liters. Electronic traction control will be optional, anti-lock braking may be standard across the board, and all models will be driven, of course, by the rear wheels.



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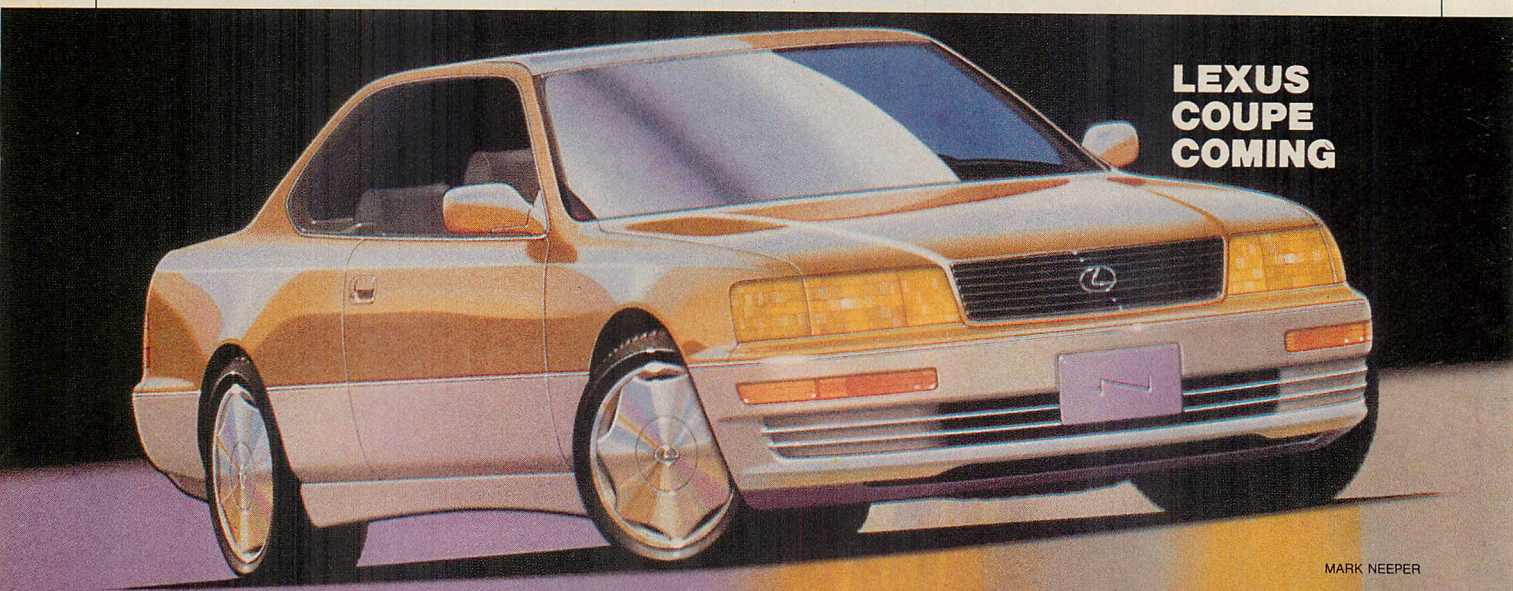

LEXUS COUPE COMING

MARK NEEPER

Due in late 1991 and aimed at the likes of the BMW 850i and Jaguar XJ-S is the new Lexus Coupe, currently codenamed F2. It will retain some LS 400 styling cues, but have its own unique sheetmetal and interior. The Coupe's 4.5-liter 32-valve DOHC V-8 will be tuned to produce about 300 hp (this larger variation of the current 4-liter engine will also be used in the Lexus sedan). Other rumored goodies include active suspension, all-wheel drive, and 4-wheel steering.

MAZDA CAROL

NISSAN FIGARO

UPPING THE CUTENESS ANTE

The Japanese street scene is about to be invaded by two more lovable little newcomers: the Mazda Carol and the Nissan Figaro. The Carol, a petite 4-seat micro-car available with a hard or sliding canvas soft top, uses mostly Suzuki mechanicals with sheetmetal and interior trim by Mazda. Geared primarily toward female buyers and sold through Mazda's new Autozam franchise, the Carol has a 40-hp 540cc SOHC 12-valve 4-cylinder engine underhood and is offered with stick or automatic transmissions and a choice of front- or all-wheel drive. Over 10,000 initial orders have been taken for the Carol, more than three times what Mazda had anticipated.

Based on existing Micra/March mechanicals, the distinctively styled Nissan Figaro is a slightly larger, but no less intriguing, exercise. Expected to go into series production in Japan, possibly within the next 12 months, the rounded "retro-look" design was meant to engender a basic elegance reminiscent of days gone by. The Figaro (yes, it's named for the character in Mozart's classic opera) is powered by a 76-hp turbocharged 1-liter SOHC four. The 4-passenger front-driver incorporates a sliding soft top that folds neatly into the trunk. Nissan hopes the Figaro will gain the same kind of cult status most recently attained by its limited production Be-1 mini-car.

IMPORT NOTES

Tale of the Unexpected: The black sheep of the Porsche family, 54-year-old Ferdinand Alexander "Butzi," has succeeded his 80-year-old father, Ferry, as chairman of the company's supervisory board. Butzi left the sports car firm 18 years ago to establish his own Porsche Design studio in neighboring Austria. He and new Chief Executive Arno Bohn will determine the future direction of the famous German marque ... **More Horses, Fewer Wheels:** According to reports in Italy, Ferrari will design a new 16-valve 4-cylinder engine for motorcycle manufacturer Cagiva. Word is that the new superbike may be allowed to wear the legendary prancing horse emblem on its twin-cam covers.

TRENDS

DETROIT REPORT

BY DANIEL CHARLES ROSS

'91 CROWN VIC, TAKE II

Last month we told you about Ford's EN-53 program, the complete redesign of the Crown Victoria and Mercury Grand Marquis. The vehicle we showed was the Mercury version. Here, in fully undisguised view, is the Crown Vic.

The Ford Family Nose is obvious in this picture. Less prominent is the look of the taillamps, brought over from the MN-12 Mercury Cougar. This is an extremely lean and contemporary shape that, in conjunction with the Mercury Grand Marquis, presents formidable competition for the just-launched Chevrolet Caprice.

SEO PHOTO

'91 CHRYSLER MINI-VAN GETS MAKEOVER

Chrysler will freshen the T-115 mini-vans for introduction in the fall as '91s, in time to assemble them in Europe with an Austrian joint-venture partner. The mini-vans are sold here as the Chrysler Town & Country, Plymouth Voyager, and Dodge Caravan, and in Europe as the Chrysler Voyager.

Whether the mini-van has an all-new exterior or not is difficult to assess. Some Chrysler insiders are claiming the T-115 is "all new," but as can be clearly seen, the overall look is carryover in theme. The front and rear ends have been modified subtly, but do not change the vehicle substantially. It's expected that no significant chassis or powertrain changes will take place. On the high end will be Chrysler's 3.3-liter V-6, and the entry-level will be a 2.5-liter 4-cylinder. Gear-changing will continue to be managed by either the 4-speed electronically controlled automatic or a 5-speed manual.

Chrysler's mini-vans have been its greatest success story, but they're being challenged by formidable new competition from the Mazda MPV, Toyota Previa, and European makes reported for future model years, which loom large on the horizon. In order to improve its success with the mini-van in Europe, Chrysler joined forces with Steyr-Daimler-Puch Fahrzeugtechnik in a manufacturing venture to produce T-115s in Austria. An existing factory in Graz will be modified to build the vehicles for the European market. This strategy comes well in time for Chrysler to be positioned for the relaxation of continent-wide trade barriers scheduled for '92.

Will Japan's showrooms be next? Chrysler Vice Chairman Gerald Greenwald told reporters at the Chicago Auto Show the Austrian venture would develop a mini-van with diesel power and a left-rear door, likely a conventional hinged one. Renault turbodiesels have been used in French Jeeps for years. Greenwald also said that a right-hand-drive version "mainly for the United Kingdom" would be "the next logical step."

BRIEFLY NOTED

Quotable: Ford exec Bob Rewey told *USA Today* that, since Ford was doing so much better than GM and Chrysler, there was no such thing anymore as the "Big Three." So far, Roger Smith hasn't commented, but Lee Iacocca said, "Smart-asses will be smart-asses, no matter where they come from." ... **And I Have Nothing To Wear!** Darrien Earle, a California restaurateur and long-time date of Lee Iacocca, told the press she and Lido would tie the knot, probably sometime this fall ... **Cash Crunching:** GM is ratcheting back product programs in a move to cut costs. The G-cars, next-gen Olds Toronado and Buick Riviera, reportedly will be delayed until '94 ... **Sold American:** On the day Chrysler announced its first quarterly loss since 1982, it announced it had sold subsidiary biz-jet maker Gulfstream Aerospace for $825 million in cold cash. The corporation says it will put the money into $3 billion-per-year product development programs ... **Caprice's Price$:** Chevy said the all-new '91 Caprice would sticker from $15,995 to $17,370 ... **The Final Straw?** Industry observers note the once-cozy Chrysler/Mitsubishi marriage is in mild retrograde. Now comes news that Chrysler is in talks with Honda about a proposal for Honda to distribute Jeeps in Japan. Chrysler sold 970 units in Japan last year.

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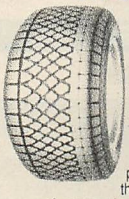
YOKOHAMA

AVS Intermediate

Designed for the driver that demands the best in Wet and Dry handling, and is willing to forgo some treadwear. This tire's quick steering response and superb high speed stability make it an excellent choice for the most demanding driver.

185/60VR-13	$77	195/50ZR-15	123	345/35ZR-15	240
205/60VR-13	93	195/55VR-15	139	195/50VR-16	141
185/60VR-14	85	195/60VR-15	101	205/50VR-16	166
195/60VR-14	95	195/65VR-15	99	205/55ZR-16	173
195/65VR-14	94	205/50ZR-15	150	225/50ZR-16	177
205/60VR-14	106	205/60VR-15	115	245/45ZR-16	200
225/60VR-14	113	205/65VR-15	113	245/50ZR-16	185
185/65VR-15	89	215/60VR-15	125	255/50ZR-16	185
		225/50ZR-15	169	215/45ZR-17	188
		225/60VR-15	123	235/45ZR-17	201
		235/60ZR-15	135	255/40ZR-17	215
		255/45ZR-15	210	275/40ZR-17	249
		285/40ZR-15	213	315/35ZR-17	301

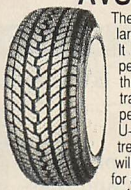
AVS A+4



Yokohama's top of the line All-Season high performance tire. The A+4 delivers similar performance to the Intermediate, along with reasonably good Snow and Cold weather performance. The unique tread pattern is designed to run very quietly. As a bonus to all this performance the A+4 provides the most supple ride of any high performance tire we have experienced.

185/60VR-14	$88	235/60VR-15	129		
195/60VR-14	98	205/55VR-16	192		
195/60VR-15	103	225/50VR-16	199		
205/60VR-15	117	255/50VR-16	207		
215/60VR-15	127				

AVS U+4



The U+4 is the tire that fills a large void in the tire market. It delivers solid Dry performance, firm footing in the Wet and excellent Snow traction. On top of the performance features, the U+4 carries a 40,000 mile treadlife warranty. The U+4 will be a very satisfying tire for any driver that demands performance, safety, long life and high overall quality.

185/60HR-14	$73	205/65HR-15	90		
195/60HR-14	81	215/60HR-15	100		
215/60HR-14	93	215/65HR-15	94		
225/60HR-14	95	235/60HR-15	107		
195/60HR-15	86				

A509

The A509 delivers performance that is second only to the AVS Intermediate. It's high level of performance in Wet and Dry is achieved without a sacrifice in treadwear, comfort or noise level. A side benefit of the A509's aggressive tread design is it's great appearance.

185/60HR-13	$62	195/60HR-15	80		
205/60HR-13	74	205/50VR-15	120		
185/60HR-14	67	205/60HR-15	85		
195/60HR-14	75	225/50VR-15	134		
205/60HR-14	84	205/55VR-16	148		
225/60HR-14	89	225/50VR-16	151		
195/50VR-15	102				

Y352

175/70HR-13	$49	205/70HR-14	65		
185/60HR-13	56	225/60HR-14	82		
185/70HR-13	54	195/60HR-15	74		
205/60HR-13	70	205/60HR-15	80		
215/50HR-13*	75	205/60VR-15	91		
235/50HR-13*	80	215/60HR-15	86		
185/60HR-14	62	215/60VR-15	99		
185/70HR-14	57	225/60HR-15*	83		
195/60HR-14	72	235/60HR-15*	84		
195/70HR-14	61	295/50HR-15*	118		
205/60HR-14	81	*White Letter			

A403

195/50VR-15	$88	205/55VR-16	140		
205/50VR-15	103	225/50VR-16	144		
225/50VR-15	117	245/45VR-16	150		

A008

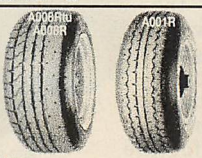
165/70HR-10	$54	215/60VR-15	119		
175/70HR-12	65	225/50ZR-15	158		
175/70HR-13	72	235/60VR-15	138		
185/70HR-13	70	285/40ZR-15	213		
185/60HR-14	81	195/50ZR-16	149		
185/70HR-14	70	205/45ZR-16	170		
195/60HR-14	86	205/55ZR-16	150		
195/70HR-14	67	225/45ZR-16	183		
205/55ZR-14	136	225/50ZR-16	182		
205/60HR-14	96	245/45ZR-16	200		
205/70HR-14	80	245/50ZR-16	185		
225/60HR-14	108	255/50ZR-16	195		
195/50VR-15	120	215/45ZR-17	188		
195/60HR-15	100	235/45ZR-17	201		
205/50ZR-15	149	255/40ZR-17	215		
205/55ZR-15	160				

A008P (Porsche)

195/65ZR-15	$105
215/60ZR-15	130
205/55ZR-16	CALL
225/50ZR-16	CALL
245/45ZR-16	CALL

COMPETITION TIRES

SHAVING AVAILABLE FOR THAT SPECIAL EDGE



A008R TU
"A Faster A008R"

185/60HR-13	$76	205/50ZR-15	147		
185/70HR-13	76	205/60HR-15	102		
205/60HR-13	87	215/60HR-15	110		
185/60HR-14	81	225/50ZR-15	166		
205/60HR-14	97	225/60HR-15	118		
195/60HR-15	95	225/50ZR-16	183		

A008R
(Soft Compound)

175/70HR-13	$70	205/55VR-16	173		
195/60HR-14	88	245/45VR-16	190		
185/70HR-15	87	245/50VR-16	175		
195/50VR-15	120	255/50VR-16	184		
195/60HR-15	94				

A001R

175/70HR-13	$49	195/70HR-14	71		
185/60HR-13	68	205/60HR-14	70		
185/70HR-13	70	205/70HR-14	71		
205/60HR-13	84	195/60HR-15	93		
185/60HR-14	60	205/60HR-15	82		
195/60HR-14	79	215/60HR-15	102		

Sport Truck Tires

Y812
Mud Digger

30X9.50R-15	$90
31X10.5R-15	104
31X11.5R-15	107
33X12.5R-15	116

Y814
Super Digger V

30X9.50R-15	$85
31X10.5R-15	94
31X11.5R-15	102
33X12.5R-15	110

Y826
Super Digger

27X8.50R-14	$69
30X9.50R-15	82
31X10.50R-15	93
31X11.50R-15	99
33X12.50R-15	108

P-Zero

205/50ZR-15	$220	225/50ZR-16	269		
225/50ZR-15	250	245/45ZR-16	289		
205/55ZR-16	220				

P700

195/50VR-15	$115	215/55VR-16	195		
205/50VR-15	153	225/50VR-16	186		
225/50VR-15	169	245/45VR-16	195		
255/45VR-15	210	215/45ZR-17	222		
205/50ZR-16	190	235/45ZR-17	232		
205/55VR-16	178				

P77

175/70HR-13	$54	185/75HR-14*	58		
185/70HR-13	57	195/70HR-14*	59		
185/70HR-14	58	195/75HR-14*	62		
195/70HR-14	62	205/70HR-14*	65		
205/70HR-14	69	205/75HR-15*	68		
205/75HR-15	73	215/75HR-15*	71		
225/70HR-15	81	225/70HR-15*	73		
205/70HR-13*	60	*White Wall			

P700Z

195/50ZR-15	$118	225/45ZR-16	197		
205/50ZR-15	159	225/50ZR-16	188		
225/50ZR-15	189	245/45ZR-16	225		
205/55ZR-16	193				

P7 & P7R

175/50VR-13F	$76	215/55VR-15F	155		
195/55VR-13F	98	225/50VR-15	165		
205/60VR-13F	120	225/50VR-15R	179		
205/55VR-14F	139	285/40VR-15R	234		
225/55VR-14F	149	285/50VR-15R	199		
195/50VR-15	110	345/35VR-15R	255		
205/50VR-15	130	195/50VR-16	167		
205/50VR-15R	159	205/55VR-16	175		
205/55VR-15F	144	225/50VR-16	189		
215/50VR-15	170	265/50VR-16R	225		

P5

175/70HR-13	$68	205/70HR-14	103		
185/70HR-13	59	205/70HR-14	118		
185/70HR-14	86	205/70HR-15	119		
195/70HR-14	95	215/70HR-15	125		

PIRELLI

Original Equipment on the World's Finest

P600

185/60HR-14	80	195/65HR-15	92		
195/60HR-14	88	195/65VR-15	110		
195/65HR-14	100	205/55HR-15	115		
205/55VR-14	110	205/55VR-15	129		
205/60HR-14	105	205/60HR-15	108		
205/60VR-14	109	205/60VR-15	126		
185/55VR-15	107	205/65VR-15	128		
185/65VR-15	110	215/60HR-15	115		
195/50HR-15	90	215/60ZR-15	149		
195/50VR-15	110	225/60VR-15	165		
195/55VR-15	111	225/60ZR-15	165		
195/60HR-15	96	235/60VR-15	165		
		205/55VR-16	139		
		225/55ZR-16	190		

P6

185/60HR-13	$68	185/65VR-15	96		
185/70HR-13	69	195/60HR-15	87		
205/60HR-13	79	195/60VR-15	103		
185/60HR-14	71	195/65HR-15	89		
185/65HR-14	69	195/65VR-15	103		
195/60HR-14	84	205/55VR-15	112		
195/60VR-14	95	205/60HR-15	89		
195/65HR-14	86	205/60VR-15	104		
195/65VR-14	90	205/65HR-15	95		
225/60VR-14	106	205/65VR-15	113		
185/70VR-15	105	215/60VR-15	109		
185/65HR-15	82	235/55VR-15	139		

P4 & P44

145 SR-10	$28	165 SR-14	42		
155 SR-12	32	175/70S R-14	43		
145 SR-13	28	175 SR-14	42		
155 SR-13	33	185/70S R-14	49		
165 SR-13	37	185 SR-14	44		
165/70S R-13	39	195/70S R-14	53		
175 SR-13	40	205/70S R-14	58		
175/70S R-13	42	165 R-15	41		
185/70S R-13	46	*P3			

Original Equipment on Saab

P8		P2000	
185/65TR-15	$60	185/65TR-15	$56

P500

- New for 1990!!
- Asymmetrical tread pattern for an excellent balance between wet and dry performance.
- Unique tread design and rubber compound for outstanding performance in snow.
- Very supple ride quality.
- Quiet running.
- Traditional Pirelli feel and quality

175/70HR-13	$65	195/70HR-14	78
185/70HR-13	70	205/70HR-14	85
185/60HR-14	82	195/60HR-15	94
185/70HR-14	73	205/60HR-15	99
195/60HR-14	87	215/60HR-15	107

Original Equipment Tires

BRIDGESTONE

108V

145/80R-12	$35				
145SR-12	35				
145SR-13	37				
155SR-13	40				
165SR-13	44				

113V

175/70SR-13*	55				
185/70SR-14**	59				
*White Letter					
**White Line					

207V

185/70HR-13	$47				
185/70HR-13*	52				
*White Letter					

212V

P195/75R-14	$54				
P195/75R-14*	60				
P205/75R-14	57				
P205/75R-14*	65				
*White Letter					

G03/G04

P195/60HR-14	$87				
P195/65HR-15	92				
205/60HR-15	90				

137V(RE86)

185/70HR-13	$63				
185/60HR-14	79				
195/60HR-14	85				
205/60HR-14	89				
225/60HR-14	95				
195/60HR-15	89				
205/60HR-15	91				
215/60HR-15	94				
*White Letter					

RE-85

185/60HR-14	$83				
175/65R-14	85				

RE-87

195/60HR-14	$85				
205/60VR-14	136				

RE-88

185/60HR-14	$80				
195/65HR-14	93				
195/60HR-15	89				
205/60HR-15	91				

RE-91

225/50VR-16	$189				

RE-92

P175/60R-14	$76				

S133

P175/70R-13	$49				

S134

P145/80R-13	$46				
P165/70R-13	47				

S237

185/70HR-13	$57				

S371

185/70HR-14	$60				

S381

155SR-13	$34				

401V

P145/80R-12	$41				
P165/70R-12	41				
P145/80R-13	39				
P155/80R-13	40				
P165/70R-13	48				
P175/70R-13	50				
185/70SR-13*	62				
*White Letter					

S402

155SR-13	$36				
165SR-13	39				
175/70SR-13	39				
185/70SR-13	43				
185/70SR-14	49				
P185/70R-14	49				
P185/75R-14	52				
P195/75R-14	54				
P205/70R-14	59				
P205/75R-14	59				
P215/75R-14	59				

S405

145SR-12	$37				
155SR-13	40				
165SR-13	49				
P165/70SR-13	49				
175/70SR-13	50				
185/70SR-13	54				
185/70SR-14	56				
P205/70R-15	65				
P205/70R-15*	70				
*White Letter					

S406

175/70HR-13	$52				
185/70HR-13	58				
185/60HR-14	85				
195/60HR-14	89				
205/60HR-14	93				
225/70HR-14	90				
195/60HR-15	91				
195/65HR-15	98				
P205/65R-15	105				
P215/65R-15	110				

YOKOHAMA

A323

185/60HR-14	$74				

AX320

185/70HR-14	$71				

AX321

195/70VR-14	$82				
205/70VR-14	89				
185/70VR-15	83				
205/70VR-15	92				
215/70VR-15	95				

AX323

185/60HR-14	$74				
195/60HR-14	83				
195/60HR-15	87				

AX340

205/60HR-15	$100				

A341

195/60HR-15	$95				
P195/65HR-15	90				

A344

195/65HR-14	$80				
195/65HR-15	83				
205/65R-15	97				

A404

205/60HR-14	$87				

A406

185/60HR-14	$74				
195/60HR-14	85				
205/60VR-14	102				

A411

215/50VR-15	$137				

Y221

185/60HR-14	$65				

Y350

P145/80 R-13	$35				
145 SR-13	35				
155 SR-13	37				
165 SR-13	39				
175 SR-14	45				
175 SR-14	49				

Y361

165/70SR-12	$40				

Y362

145 SR-12	$31				

Y351

165/70 SR-13	$44				
175/70 SR-13	44				
185/70 SR-13	49				
185/70 SR-14	57				
185/70 SR-14	59				
195/70 SR-14	55				
185/75 R-14	59				

Y352

185/60 HR-14	$66				
225/60 HR-14	87				
195/60 HR-15	82				
215/60 HR-15	91				
215/60 VR-15	104				

Y360

P195/75 R-14	$51				
P205/75 R-14	51				
P205/75R-14*	62				
*White Letter					

Y370

235/75 R-15	$61				

Y380

175/70 SR-13	$45				

Y372

145 SR-12	$34				
165/70 SR-12	40				
175/70 SR-13	40				
175/70 SR-14	47				
185/65 SR-14	63				

Y376

185/60 HR-14	$80				
195/60 HR-14	88				

Y383

165/80 R-13	$36				

Y384

165 SR-13	$40				
185/70 SR-13	48				
185/70 SR-14	51				

Y387

165 SR-13	$36				

Y388

195/65 HR-15	$74				
215/65 HR-15	89				

Y858

185 SR-14	$48				
195/75 R-14	51				

Y382 (75/80)

P155/80R-13	$38				
155SR-13	40				
P165/80R-13	43				
P175/70R-13	50				
175/70SR-13	50				
P185/70R-13	52				
185/70SR-13	52				
P185/70R-14	56				
185/70SR-14	56				
195/70SR-14	59				
P195/75R-14	56				
P195/75R-14*	63				
P205/70R-14	63				
P205/75R-14	69				
P205/75R-14*	67				

Y382 (60/65)

185/60HR-14	$62				
205/60HR-14	80				
195/60HR-15	86				
205/60HR-15	93				

Call for OE Sport Truck Tires

Original Equipment Tires

DUNLOP

D40 M2

205/55ZR-15	$135	225/60VR-15	128		
205/60VR-15	126	205/55ZR-16	154		
205/65VR-15	122	225/50ZR-16	167		
215/60VR-15	127	245/45ZR-16	181		
225/50ZR-15	163				

D60 M2

185/60HR-14	CALL	195/65HR-15	CALL		
195/60HR-14	CALL	205/60HR-15	CALL		
195/65HR-14	CALL	205/65HR-15	CALL		
195/60HR-15	CALL	215/60HR-15	CALL		

BFGOODRICH

Comp T/A HR All Season

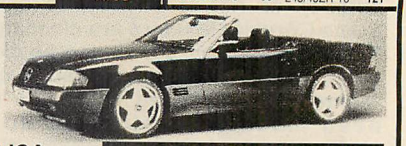
185/60HR-14	$68	205/60HR-15	80		
195/60HR-14	71	235/60HR-15*	95		
215/60HR-14	77	*White Letter			
195/60HR-15	77				

Comp T/A VR & ZR

185/60VR-13	$65	205/50VR-15	104		
195/60VR-14	85	205/55ZR-16	116		
255/60VR-15	110	225/50ZR-16	140		
195/50VR-15	95	245/45ZR-16	121		

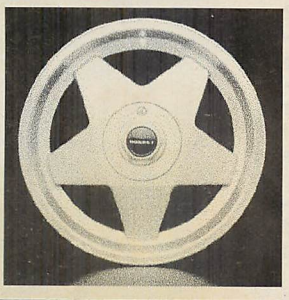
BORBET

18" Type A available for:
- *BMW*
- *Ford*
- *Mercedes*



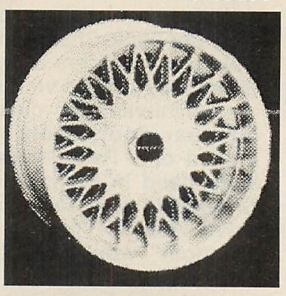
TYPE A
15,16,17,18"

Fits: Audi, BMW, Ford, GM, Jaguar, Mercedes, 911, 930, Volvo, VW.
Finish: Silver or anthracite center w/ polished lip.
Sample Package:
16x7.5 wheel with 225/50ZR-16 AVS
$1,852
17x8.5 wheel with 245/40ZR-17 XGT
$2,085



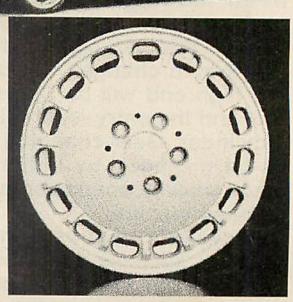
TYPE B
14,15,16,17"

Fits: Audi, BMW, Ford, Jaguar, Mercedes, 911, 930, Volvo, VW.
Finish: Polished face w/ silver or black accent.
Sample Package:
15x7 wheel with 205/60HR-15 A509
$1,264
17x8.5 wheel with 235/45ZR-17 RE71
$2,060



REPLICA
15"

Fits: All Mercedes (except 560SL)
Finish: Silver
Sample Package:
15x6.5 wheel with 195/60HR-15 Pirelli
$772
15x7 wheel with 205/65VR-15 Conti CV51 **$940**



3300 W Sample Street
South Bend, IN 46619

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1.219.287.2316
Fax: 1.219.287.1803

HOURS: CST
M-F 8am - 7pm
SAT 9am - 4pm

Prices Subject to Change

TRENDS

DETROIT REPORT

RANDY LORENTZEN

MT'S RAGIN' RANGER

Motor Trend, with the help of Ford Motor Company, got the chance to participate in the current round of concept-car mania sweeping the auto show circuit. Actually, Ford asked us to revamp a '90 Ranger to reflect a youthful Southern California image.

Thom Taylor, a local designer famous for his outrageous street-rod designs chiseled out by hot-rodders like Boyd Coddington and Chuck Lombardo, was assigned to give our Ranger the Cal-look treatment. His design called for some heavy metal work, like removing the roof, laying back the windshield, and "rolling" the rear pan, which was accomplished by Custom Metal Shaping. A complete ground-effects package was fabricated by West Coast Concepts, which also blocked the grille opening and installed a hard tonneau cover. Lars Johansson lowered the Ranger a total of 4.5 in. in front and 6 in. in the rear, then stuffed the wheelwells with a set of color-keyed Boyd wheels and B.F. Goodrich Euro Comp T/As. Finishing touches on the Ranger included a special turquoise paint scheme applied by West Coast Concepts; the pinstriping was done by R.C. Fanchette. Seating was upgraded with a set of custom Cerullo sport seats.

For the present, the stock Ranger powertrain was left alone. Ford has already produced some wild Ranger renditions fitted with Taurus SHO powerplants. The visual impact is hard to ignore. The design must have struck the right chords because its popularity with SoCal youths at the L.A. Auto Show was immense.

OLDSMOBILE GETS AN UPSCALE BABY TRUCK

Oldsmobile, a GM division more famous for cush that cartage, will offer its own badge-engineered S-model baby sport/utility in '91, the Bravada 4-door. The truck made its debut in January at the North American International Auto Show in Detroit. It's the first truck in the Oldsmobile lineup since 1934.

Olds will power the truck with the corporate 4.3-liter V-6 making 160 hp. Unlike the normally part-time 4wd systems widely used in the other S-model sport/utes, the Bravada will feature full-time all-wheel drive. Naturally, Olds will offer the vehicle in a higher state of standard trim and equipment than the similar trucks sold in Chevrolet and GMC stores. Air conditioning and antilock brakes will be standard equipment. In addition, distinctive exterior modifications to the vehicle include a specific Oldsmobile front cap and grille.

CORNING'S CLEANER CAT-CONS

A new generation of catalytic converters will be making an appearance by 1993. Corning Corporation has announced it's working on an improved design that will help reduce even further the amount of carbon monoxide and other pollutants released at the tailpipe. The new-design converters are expected to add between $100 and $500 to the price of each vehicle.

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Michelin

XGTV (Plus)

195/60VR-14	$115	235/50ZR-16+	165
205/60VR-15	119	245/50V R-16	160
215/60VR-15	120	255/50V R-16	175
225/60V R-15	125	245/40Z R-17+	180
205/55V R-16	153	275/40Z R-17+	240
225/50V R-16	171	315/35Z R-17+	275

MXV

185/60HR-14	$79	185/65HR-15	89
195/60HR-14	85	195/60HR-15	93
195/65HR-14	92	195/65HR-15	104
195/65V R-14	105	205/60HR-15	115
195/70HR-14	84	205/65HR-15	103
205/70HR-14	90	205/65V R-15	116

TRX

180/65HR-390	$87	220/55VR-390	129
190/65HR-390	95	240/55VR-390	142
200/60VR-390	126	240/45ZR-415	149
220/55HR-390	103	240/55VR-415	160

XWX

205/70VR-14	$139	215/70VR-15	190

Continental CH/CV 51

175/70HR-13	$65	195/65HR-15	79
185/70HR-13	68	195/65V R-15	91
205/60HR-13	87	205/55V R-15	124
185/60HR-14	79	205/60HR-15	98
185/70HR-14	73	205/60V R-15	115
195/60HR-14	88	205/65HR-15	89
195/60V R-14	100	205/65V R-15	95
195/65HR-14	80	215/60V R-15	120
205/70HR-14	85	205/70V R-15	140
185/65HR-15	79	225/50V R-16	148
195/60HR-15	95	245/45V R-16	165

Goodyear

Gatorback VR

205/60VR-13	$118	245/60VR-15	144
205/60VR-14	125	255/60VR-15	149
215/60VR-14	129	265/50VR-15	193
235/60VR-14	135	205/55VR-16	162
195/60VR-15	124	225/50VR-16	175
205/50VR-15	152	225/60VR-16	140
205/60VR-15	130	245/50VR-16	187
215/60VR-15	132	245/50ZR-16	210
225/50VR-15	170	255/50VR-16	191
225/60VR-15	135	255/50ZR-16	218
		275/40ZR-17	265

Goodyear NCT

175/70HR-14	$75	195/65VR-15	100
185/60HR-14	78	205/50VR-15	90
185/70HR-14	80	205/55VR-15	108
195/60HR-14	84	205/60HR-15	85
195/60HR-14	92	205/60VR-15	110
195/65HR-14	88	205/65VR-15	95
195/65VR-14	95	225/60VR-15	125
195/70HR-14	100	235/60VR-15	140
195/60HR-15	96	235/70HR-15	126
195/60VR-15	99	205/55VR-16	165
		225/50VR-16	165

Eagle (VR,ZR) / German Made

185/60VR-14	$80	205/50VR-16	139
195/60VR-14	82	205/55ZR-16	155
195/50VR-15	95	215/55VR-16	162
195/60VR-15	93	225/45VR-16	169
205/50VR-15	126	225/50VR-16	165
205/55VR-15	137	225/50ZR-16	165
215/50ZR-15	160	225/55VR-16	180
195/50VR-16	140	245/45ZR-16	208
205/45VR-16	180	245/45VR-16	195

Goodyear

Eagle GT+4

175/70T R-13*	$80	205/60T R-15	102
185/70T R-13*	84	205/60T R-15*	106
185/60T R-14*	90	205/70T R-15	100
185/70T R-14*	89	215/60 R-15	102
185/70U R-14	84	215/60HR-15*	120
195/60HR-14	104	215/65 R-15*	107
195/60T R-14*	95	215/65HR-15*	120
195/70 R-14*	95	215/65U R-15	102
195/70 R-14	90	215/65V R-15	124
195/70HR-14*	107	215/70HR-15	118
205/60HR-14	110	225/70HR-15	122
205/60T R-14*	102	225/70T R-15*	110
205/70HR-14	109	245/60T R-15*	119
205/70T R-14*	101	255/60T R-15*	122
215/60U R-14	99	205/55HR-16	130
215/60U R-14*	105	205/55U R-16	102
235/60HR-14	112	205/55V R-16	146
185/60HR-15	105	215/60U R-16	105
195/60HR-15	110	225/60 R-16	114
195/70U R-15	95	225/60V R-16	132
205/60HR-15	116	*WhiteLetter	

Eagle GT

185/60HR-14	$102	205/70HR-14	99
185/70 R-14	89	215/60 R-14	100
205/60 R-14	86	195/60V R-15	117
205/70 R-14	83	215/65 R-15	104

Goodyear GA

195/70SR-14	$88	205/60HR-15	115
205/70HR-14	107	205/65SR-15	103
215/60TR-14	96	205/65VR-15	118
195/60VR-15	116	215/65SR-15	98
195/65HR-15	110	215/60SR-16	103

Bridgestone

RE71

205/60VR-13	$111	215/60VR-15	141
185/60HR-14	97	225/50VR-15	161
195/60HR-14	105	225/60VR-15	122
205/60HR-14	110	235/60VR-15	146
215/60HR-14	114	245/50VR-15	156
225/60HR-14	115	205/55ZR-16	185
195/50VR-15	125	225/50ZR-16	174
195/60HR-15	102	245/45ZR-16	180
195/60VR-15	124	245/50VR-16	194
195/65VR-15	135	255/50VR-16	194
205/50VR-15	148	215/50ZR-17	203
205/60HR-15	108	235/45ZR-17	194
205/60VR-15	128	255/40ZR-17	200
215/60HR-15	116	275/40ZR-17	215
			260

HP41

205/60HR-13*	$65	205/60HR-15	70
185/60HR-14	63	215/60HR-15	75
195/60HR-14*	69	215/65HR-15*	80
215/60HR-14*	73	225/60HR-15*	83
225/60HR-14*	78	235/60HR-15*	85
235/60HR-14*	82	255/60HR-15*	91
195/60HR-15	67	*WhiteLetter	

S471 "RCOT"

165/70HR-13	$40	205/70HR-14	59
175/70HR-13	46	205/70HR-14*	69
175/70HR-13*	50	215/70HR-14	72
185/70HR-13	51	215/70HR-15	76
185/70HR-13*	57	225/70HR-15	79
185/70HR-14	54	235/70HR-15	83
185/70HR-14*	62	255/70HR-15	89
195/70HR-14	57	*White Letter	
195/70HR-14*	64		

Falken

175/70HR-13	$43	205/50VR-15	112
185/60HR-13	51	205/60HR-15	65
185/70HR-13	49	215/60HR-15	71
205/60HR-13	71	225/50VR-15	126
175/60HR-14	53	225/60VR-15	91
185/60HR-14	55	235/60HR-15*	83
185/70HR-14	51	205/55VR-16	132
195/60HR-14	60	225/50VR-16	139
195/70HR-14	59	245/50ZR-16	148
205/60HR-14	63	255/50VR16	148
205/70HR-14	61	215/45ZR-17	170
195/50HR-15	82	235/45ZR-17	175
195/50VR-15	82	*White Letter	
195/60HR-15	63		

Fulda Y2000

185/60HR-14	63	225/50VR-15	130
195/60HR-14	70	225/60VR-15	118
195/50VR-15	79	205/45VR-16	149
205/50VR-15	98	205/55VR-16	131
205/55VR-15	115	225/45VR-16	163
205/60HR-15	87	225/50VR-16	144
205/60VR-15	96	245/45VR-16	177
215/60ZR-15	118	255/50VR-16	163

Uniroyal Rallye340

195/60VR-14	$97	205/60VR-15	117
195/65VR-15	96	225/60VR-15	149

Semperit Direction

195/55VR-15	$95	215/60VR-15	110
205/50VR-15	100	225/50VR-16	115

General

XP2000

195/50V R-15	$76	205/55Z R-16	169
205/50V R-15	94	225/50Z R-16	175
225/50V R-15	106	245/50Z R-16	179
225/60V R-15	118	255/50Z R-16	186

TIRE SPECIALS

205/55ZR-16 BFG Comp T/A	116
245/45ZR-16 BFG Comp T/A	121
185/70VR-13 Michelin XWX	75
215/70HR-14 BFG Lifesaver HP4	58
225/50VR-16 Semperit Direction	115
205/55UR-16 Goodyear GT+4	119

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RONAL

36

RONAL R-9 15,16"
Fits: Audi, BMW(5,6,7), Ford, GM, Jaguar, Jeep, Mazda, Mercedes, Nissan, Porsche, Toyota, Vanagon.
Finish: Silver, black, white or custom paint.
Sample Package: 15x7 wheel w/ 205/55VR-15 Pirelli P600 **$1,200**

40

RONAL R-15 15"
Fits: Audi, BMW(320i, 325), Mustang, Thunderbird, Honda, Mazda, RX-7(79-85), VW & more.
Finish: Polished face or custom paint.
Sample Package: 15x7 wheel w/ 205/50VR-15 Comp T/A **$1,060**

38

RONAL R-8 14,15"
Fits: Audi, BMW(3), Honda, Toyota, VW.
Finish: Silver, antique silver, or custom paint.
Sample Package: 14x6 wheel w/ 185/60HR-14 Yoko Y352 **$696**
15x6 wheel w/ 195/50HR-15 Falken **$768**

41

RONAL LS 15,16"
Fits: Acura, Audi, BMW, Taurus, Thunderbird, GM(twd), Honda, Mazda, Mercedes, Maxima, Supra, Camry, VW and more.
Finish: Polished face w/ black or gold accent.
Sample Package: 15x7.5 wheel w/ 205/60HR-15 A509 **$1,069**

25

ARC CHROME-16x8
Fits: Mercedes 126.
Finish: Chrome w/ gold star.
Sample Package: 16x8 wheel w/ 225/50VR-16 Comp T/A **$1,424**

FITTIPALDI

77

INDY-15"
Fits: Audi, BMW, Honda, Mazda, Nissan, Toyota, VW and more.
Finish: Silver center with polished lip.
Sample Package: 15x7 wheel W/ 205/50VR-15 RE71 **$1,352**

73

MONOLITHIC-14,15,16"
Fits: Acura, Audi, Bmw, Chrysler(twd), Ford, Honda, Isuzu, Mazda, Nissan, Mercedes, Toyota(twd), VW.
Finish: Polished face w/ clearcoat.
Sample Package: 14x6 wheel w/ 185/60HR-14 A509 **$930**

72

FITTI-TWIST-15"
Fits: BMW(3),Mazda, Nissan, Toyota, VW and more.
Finish: Polished face w/ clearcoat
Sample Package: 15x7 wheel w/ 205/50VR-15 Y2000 **$1,150**

74

FITTISTAR-15,16,17" 3 pc.
Fits: BMW, Camaro, Corvette, Jaguar, Bi-Turbo, RX-7, Mercedes, Mustang, 300ZX, Supra, VW.
Finish: Polished face w/ black accents & clearcoated,white center.
Sample Package: 16x7.5 wheel w/ 225/50VR-16 RE71 **$2,390**

75

FITTIAERO-15" 1pc.
Fits: Acura, Audi, Chrys.(fwd), GM(fwd), Mustang, Honda, 626, 190E, 300E, Maxima, 240SX, Peugeot 405, 911, 944, Toy.(fwd), Volvo.
Finish: Polished face w/ black acc.
Sample Package: 15x6 wheel w/ 195/50VR-15 Y2000 **$790**

BOYDS/ELITE

90

BOYDS-14-17"
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- Fitments available for most production cars & custom made to your specifications.
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81

ELITE VIPER-15"
Fits: BMW, Camaro, Chevy PU, Astro Van, Mustang, Probe, Ranger, Aerostar, Mazda 626 & PU,Nissan PU, Toyota PU, Volvo.
Finish: Machine or chrome plated.
Sample Package: 15x7 wheel w/ 195/50VR-15 Y2000 **$855**

80

ELITE STAR-15,16"
Fits: Most cars and light trucks
Finish: Machine or chrome plated
Sample Package: 15x7 wheel w/ 205/50VR-15 Comp T/A **$934**
16x7 wheel w/ 205/55VR-16 XGTV **$1303**

20

AMG-16,17"
Fits: Mercedes
Finish: Silver w/ polished lip.
Sample Package: 16x7.5 wheel w/ 205/50VR-16 Goodyear VR50 $1,936
17x8 wheel w/ 215/45ZR-17 Yoko AVS **$2,580**

19

HRE 505-15,16"
Fits: Acura, Alfa, Audi, BMW, Chrysler, Ferrari, Ford, GM, Jaguar, Mazda, Mercedes, Masser, Nissan, Porsche, Saab, Toyota, Volvo, VW.
Finish: Polished face w/ gold, black, or silver accent.
Sample Package: 15x7 wheel w/ 225/50VR-15 Comp T/A **$1,888**

MSW

6

MSW TYPE 20-14,15,16"
Fits: Acura, Alfa, Audi, BMW, Chrysler, Ford, GM(5-100), Honda, Jaguar, Mazda, Mercedes, Nissan, Toyota, Volvo, VW, and more.
Finish: Silver, black or white center with polished lip.
Sample Package: 14x6 wheel w/ 185/60HR-14P600 **$916**

8

MSW TYPE 21-14,15"
Fits: Acura, Audi, BMW, Chrysler, GM, Ford, Honda, Mazda, Mitsu., Nissan, Toyota, Volvo, VW.
Finish: Silver, anthracite, gold or white(all diamond cut)
Sample Package: 15x7 wheel w/ 205/60VR-15 AVS **$1,140**

9

MSW TYPE 5-14,15"
Fits: Audi, BMW(3), Chrysler, Ford(twd), GM(twd), Honda, Mercedes 190, VW.
Finish: Polished face w/ black accents.
Sample Package: 14x6 wheel w/ 185/60HR-14 A008 Yoko **$811**

7

MSW TYPE 24-17" 3pc
Fits: BMW, 84+ Corvette, Mercedes, Porsche.
Finish: Black or silver center with polished lip
Sample Package: 17x8 wheel w/ 235/45ZR-17 Yoko AVS **$3,370**

11

MSW TYPE 1/2-13,14,15"
Fits: Acura, Audi, BMW, Chrysler, Ford, GM(twd), Honda, Mazda, Mercedes, Mitsu., Nissan, Saab, Toyota, Volvo, VW.
Finish: Anthracite diamond cut, black or gold.
Sample Package: 14x6 wheel w/ 185/60HR-14 P600 **$773**

CENTRA

42

CENTRA TYPE 11-15x7
Fits: BMW 3, Honda, 929, Mercedes, MR2, Toyota PU, VW.
Finish: Silver or black w/ polished lip.
Sample Package: 15x7 wheel w/ 195/50VR-15 RE71 **$1,172**

44

CENTRA TYPE 31-14,15,16"
Fits: All Mercedes.
Finish: Polished face w/ gold star. Chrome finish available.
Sample Package: 15x7 wheel w/ 205/65VR-15 Conti CV51 **$1,060**
16x7 wheel w/ 225/50VR-16 Eagle VR50 **$1,448**

45

CENTRA TYPE 8-14,15"
Fits: Audi, BMW 3, Honda, VW.
Finish: Polished face or painted white.
Sample Package: 14x6 wheel w/ 185/60HR-14 Pirelli P600 **$832**
15x7 wheel w/ 205/50VR-15 Conti CV51 **$1,163**

14

GOTTI-17" 3pc.
Fits: Corvette.
Finish: Polished face with gold or black accent.
Sample Package: 17x10 wheel w/ 275/40ZR-17 XGT+ **$2,840**

19

MSW TYPE 19-13,14"
Fits: Acura, BMW(3 series), Probe, Honda, Hyundai, Mazda, VW.
Finish: Silver center w/ polished lip.
Sample Package: 14x6 wheel w/ 195/60HR-14 U+4 **$760**

RW / WRD

26

RW HIGH-TECH14,15,16,17"
Fits: Acura, Alfa, Audi, BMW, Chrysler, Ford, GM(twd), Corvette (84-89), Honda, Mazda, Mercedes, Nissan, Saab, Toyota, Volvo, VW.
Finish: Gold, black, white or red w/ polished lip.
Sample Package: 17x7.5 wheel w/ 235/45ZR-17 Falken **$2,088**

27

RW RAFALE-17"
Fits: BMW, Camaro, Corvette, Ford, Mustang.
Finish: Gold, black, white, red with polished lip.
Sample Package: 17x9.5 wheel w/ 275/40ZR-17 XGT+ **$2,468**

22

WRD RT-14,15,16"
Fits: Acura, Audi, BMW, Chrysler, Ford, GM(twd), Honda, Mazda, Mercedes, Mitsu., Nissan, Porsche, Toyota, VW.
Finish: Silver, gold, black or white.
Sample Package: 15x6 wheel w/ 195/50VR-15 Comp T/A **$1,092**

21

WRD GS-13,14,15,16"
Fits: Acura, Audi, BMW, Chrysler, Ford, GM, Honda, Hyundai, Mazda, Mitsu., Nissan, Saab, Sterling, Toyota, VW.
Finish: Silver, black or white w/ polished face.
Sample Package: 14x6 wheel w/ 185/60HR-14 Comp T/A HR **$928**

23

ETOILE-16,17" 3pc.
Fits: Ferrari, GM, Porsche and more. Custom fitments available.
Finish: Polished face w/ gold accent.
Sample Package: 16x7 wheel w/ 225/50VR-16 Pirelli P700 **$3,048**

ENKEI

31

ENKEI 82-13,14,15"
Fits: Most front & new generation rear drive cars.(domestic & import)
Finish: Polished face with black or white accent.
Sample Package: 14x6 wheel w/ 185/60HR-14 Fulda Y2000 **$752**
13x5.5 wheel w/ 185/60HR-13 Falken **$664**

32

ENKEI 84-13,14,15"
Fits: Most front & new generation rear drive cars.(domestic & import)
Finish: White.
Sample Package: 14x6 wheel w/ 185/60HR-14 P600 Pirelli **$852**
13x5.5 wheel w/ 175/70HR-13 Y352 Yoko **$692**

71

ENKEI 88-13,14,15"
Fits: Most front drive cars.
Finish: Gold, silver, or white spokes w/ polished lip.
Sample Package:13x5.5 wheel w/ 205/60VR-13 XGT **$720**

70

ENKEI 93-15,16"
Fits: Mustang, T-Bird, Corvette, Supra, RX-7,Legend & many more.
Finish: Polished face w/ gold, black or white accents.
Sample Package: 16x7 wheel w/ 225/50ZR-16 Comp T/A **$1,412**

28

ENKEI 92-13,14,15,16"
Fits: Most cars.
Finish: Gold, black, silver,white w/ polished lip.
Sample Package: 15x7 wheel w/ 205/60HR-15 Falken **$868**
16x7 wheel w/ 225/50VR-16 Y2000 **$1,212**

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TRENDS

INTERNATIONAL REPORT

GM AND FORD ADVANCE IN EUROPE

It's tight at the top, but by selling 4.1% more cars than Fiat in 1989, the Volkswagen-Audi Group hung onto its No. 1 position in the European sales chart. In a market that reached an all-time high of 13.4 million units, most major players increased overall sales, but especially GM and Ford.

GM, in fact, made the year's biggest advance, achieving record sales in seven countries as its number of annual customers increased by 135,000 to 1.4 million, elevating market share from 10.4% to 11%. And by enlarging its slice of the pie from 11.3% to 11.6%, Ford managed its greatest number of European sales.

Though France's Peugeot-Citroën group has vowed to become Europe's No. 1 by the middle of this decade, it stuck in 3rd place, its share reduced from 12.9% to 12.7% by a seven-week factory workers' strike.

Also with a smaller slice was Toyota, which just failed to make the top 10. With sales restrained to 324,000 units, the same level as 1988, its portion declined from 2.8% to 2.6%, and between them, all the Japanese makes slipped from 11.3% to 10.8%.

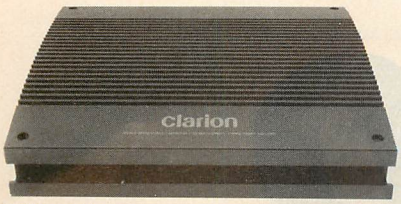
As we went to press with these figures, which are generally agreed upon by leading independent industry analysts, Fiat disputed them! The Italian auto maker claims it sold 2 million cars last year for a 15% share of the market, and says VW sold only 1.97 million. Both companies bickered over the 1988 figures, too, although experts widely reckoned VW was top dog.

As if to emphasize that its position is secure, VW points out that gasoline taxes will almost double this year in Italy, and that's a market Fiat is heavily dependent upon.

EUROPE'S TOP 10 MARQUES

Marque	Units*	1989	1988
1. Volkswagen	2.02	15.1%	14.8%
2. Fiat	1.94	14.4	14.8
3. Peugeot-Citroën	1.70	12.7	12.9
4. Ford	1.56	11.6	11.3
5. General Motors	1.48	11.0	10.4
6. Renault	1.39	10.4	10.2
7. Mercedes-Benz	0.40	3.2	3.4
8. Rover Group	0.39	311	3.5
9. Nissan	0.38	3.0	3.0
10. BMW	0.36	2.8	2.8

*Millions



3200 A Amplifier. Continuous Average Power Output 320W (80W x 4, 4 Ohms, 20 Hz-20 KHz @ 0.1% THD). Bridgeable for 2, 3 or 4 channel operation. Pulse Width modulated DC to DC switching power supply. All channelled very carefully through a Soft Start Protection System.

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SE 8370 Component Speakers. Softdome, diamond coated titanium tweeters smooth out resident frequency for a pure, clear Clarion high. Cross carbon fiber woofer driven by a massive ferrite magnet. And a water resistant midrange to smoothly blend the two together.

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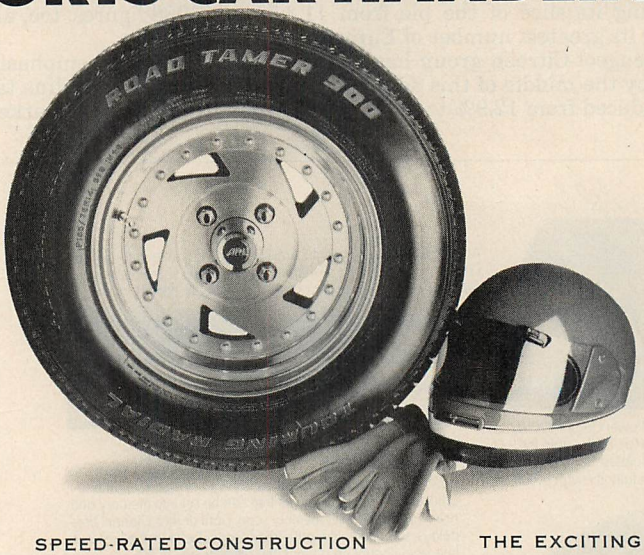

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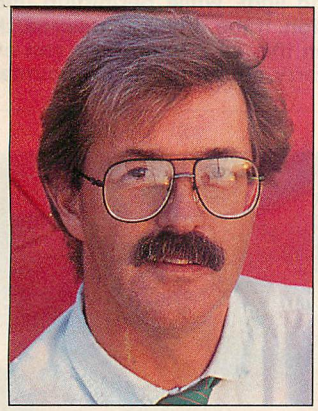
TRENDS

INTERNATIONAL REPORT

MAZDA NAVAJO ON THE WARPATH

Mazda plans to enter the great sport/utility fray this fall with this handsome newcomer, the Navajo. Based on the equally new Ford Explorer platform and built for Mazda by Ford at its Louisville, Kentucky, plant, the Navajo will only be available in a 2-door all-wheel-drive configuration. A 155-hp 4-liter OHV electronically fuel-injected V-6 resides underhood, and transmission choices include a 5-speed manual or 4-speed O/D automatic. Although the chassis and all major sheetmetal are shared with the Explorer, the Navajo gets its own specific exterior and interior trims.

MCLAREN POACHES TOP DESIGNER



IAN DAWSON

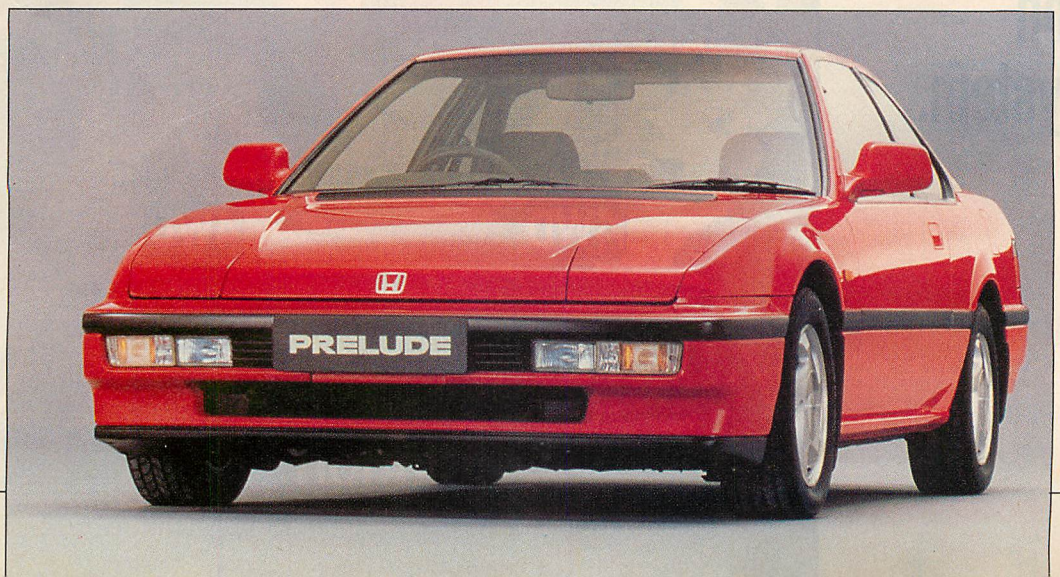
One of Europe's most respected automotive stylists, former London Royal College of Art tutor Peter Stevens, is quitting his post as chief designer of Lotus Design in order to shape the new McLaren supercar. It's McLaren Cars' intention that this will be "the best sports car in the world."

Stevens' departure is a real loss to Lotus: His 1987 redesign of the Esprit was warmly applauded, even by the car's original designer, Giorgetto Giugiaro; his design proposal for the new Elan, now in production, was judged more attractive than rival submissions from Giugiaro and GM Design Staff boss Chuck Jordan; and he was largely responsible for developing the consultancy business of Lotus Design, which has ambitions to be considered an alternative to top studios such as Bertone, Ital, and Pininfarina.

PRELUDE GETS TRACTION CONTROL

Honda has made several changes to its Prelude lineup in Japan. The carbureted XL/XX and fuel-injected INX Si SRS variants receive flush-mounted fixed headlights in place of the old retractable units and a more formal-looking front and rear fascia. Upgraded trim and a redesigned instrument panel are found inside. The SRS model also gets a driver-side airbag, the first such installation in a Prelude. But the biggest news is the arrival of the new, top-line Si TCV, which is fitted with a traction-control system that we may someday see on U.S.-bound Preludes, as well. In addition to the basic traction-control hardware, the comprehensively equipped TCV also has a viscous-coupled limited-slip differential, 4-wheel steering, 3-channel anti-lock brake system, and larger 14-in. alloy wheels. A test drive of the new TCV model proved the package was quite effective in maintaining control and preventing unwanted wheelspin on all types of surfaces. The worse the road conditions, the more impressively the TCV performed under a variety of acceleration, braking, and cornering maneuvers.

—Peter Lyon



FROM SHOWPLACE TO SHOWROOM

Two Toyota concept cars seen at the recent Tokyo Motor Show have made the transformation to production vehicles, at least in Japan and Europe. Derived from the original AVX-II showcar and loosely based on Tercel mechanicals, this petite gullwing known as the Sera has just gone on sale in Japan. Powered by a 1.5-liter DOHC four driving through a 5-speed manual or a new, continuously variable automatic transmission, the futuristic 2+2 features a spacious cockpit and incorporates a new "super live sound system" with eight speakers for concert-hall ambiance. The Sera is scheduled to be produced in a limited run of 20,000.

By mid-year, the go-anywhere light-utility RAV-Four will also make its appearance in Japan and Europe. Also borrowing some Tercel mechanicals and powered by a 100-hp 1.5-liter 4-cylinder engine, this "neo-urban 4WD" combines a metal upper body with tough plastic and resin lower structures that resist scrapes and dings. The RAV-Four's all-glass roof features detachable panels and a special film that reflects incoming light, while permitting unobstructed outward vision. If the driver so desires, the well-finished interior on this 2+2 fun-runner can even be reconfigured to carry a motorcycle or mountain bike.

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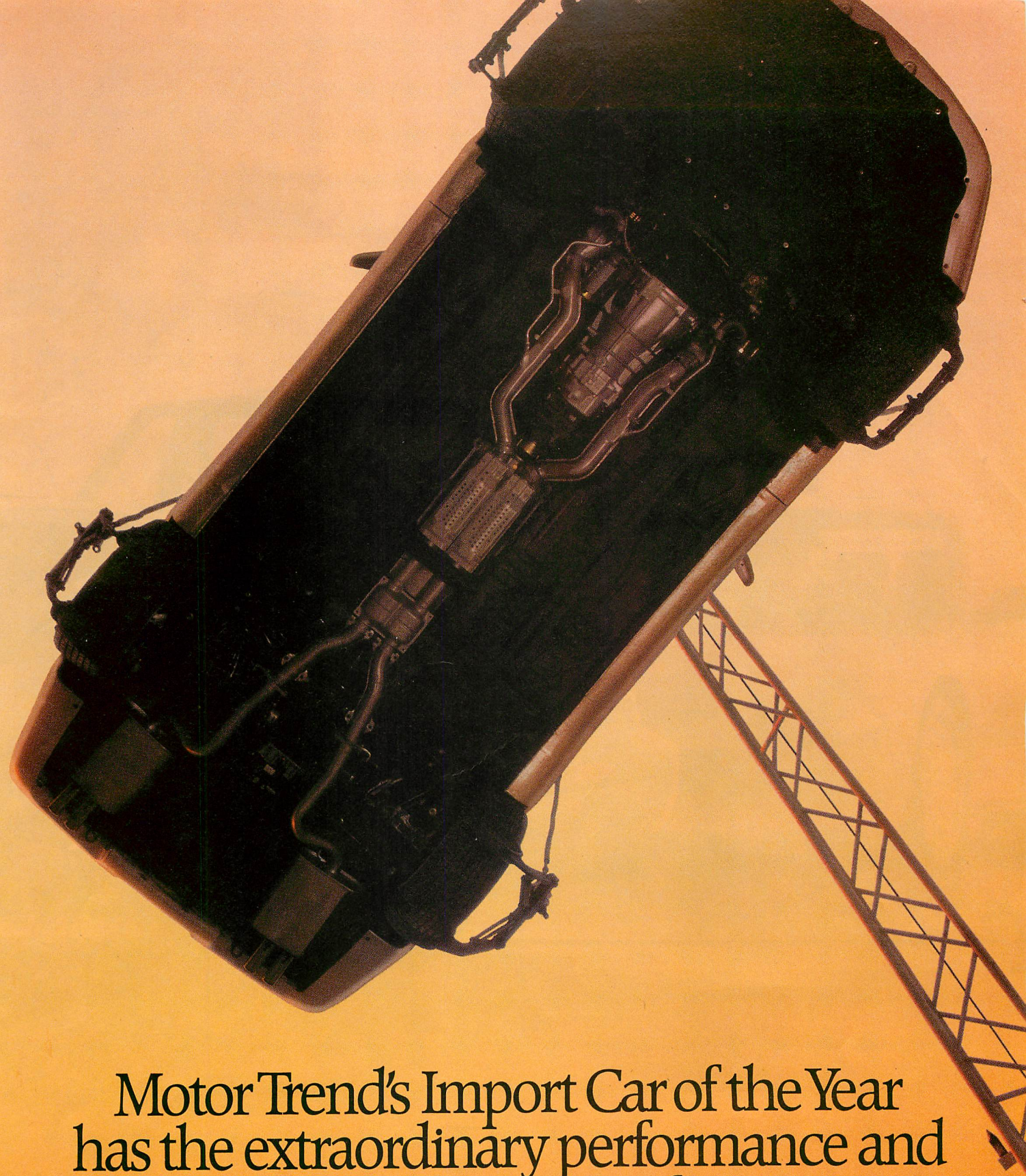

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TRENDS

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WASHINGTON REPORT

MOTOR TREND'S Road Test Review

Model	Year	Issue	0-60 (sec)	¼ Mile (sec)	¼ Mile (mph)	Brake 60-0 (ft)	Lat. Accel. (g)	EPA City (mpg)
Acura Integra GS	'90	3/90	8.9	16.6	83.4	122	.83	24
Acura Legend Sedan LS	'88	5/88	7.9	16.3	86.8	149	.79	19
Alfa Romeo Milano	'86	2/87	9.8	17.6	80.6	140	.83	18
Audi Coupe Quattro	'90	9/89	9.0	16.7	83.7	138	.84	18
Audi V8 Quattro	'90	12/89	9.3	16.9	87.2	134	.77	14
Audi 80	'88	8/88	10.9	18.0	79.0	154	.81	22
Audi 90 Quattro	'88	4/88	10.1	17.3	80.1	134	.83	18
BMW M3	'87	12/87	8.1	16.1	88.3	130	.82	23
BMW M6	'88	4/88	7.0	15.5	94.5	126	.83	15
BMW 325iX	'88	3/88	8.5	16.4	84.1	146	.79	17
BMW 525i	'89	9/89	9.0	16.8	83.8	128	.80	18
BMW 535i	'89	4/89	9.1	16.9	87.6	133	.81	15
BMW 735i	'88	4/88	9.4	17.2	84.9	136	.78	14
BMW 750iL	'88	6/88	7.6	15.8	93.3	132	.81	12
Buick Reatta Convertible	'90	2/90	9.8	17.3	79.9	132	.83	18
Buick Regal Ltd.	'90	2/90	9.1	16.8	83.0	131	.78	19
Buick Riviera T-Type	'87	3/87	9.8	17.4	79.4	139	.81	19
Cadillac Allanté	'90	1/90	7.9	16.1	86.5	125	.85	15
Cadillac Eldorado	'88	12/87	10.0	17.5	79.3	147	.81	17
Cadillac Sedan de Ville	'90	3/90	8.8	16.6	83.3	159	.71	16
Cadillac Seville STS	'88	9/88	10.0	17.5	79.2	145	.81	17
Chev. Beretta GTZ	'90	4/90	7.6	16.0	88.8	133	.86	22
Chev. Camaro IROC-Z	'90	3/90	5.8	14.4	97.8	132	.90	16
Chev. Caprice Cls. Brghm.	'89	8/89	11.3	18.6	78.6	175	.67	17
Chev. Cavalier Z24 Conv.	'88	5/88	9.3	17.0	82.2	144	.84	20
Chev. Corsica LTZ	'89	4/89	9.3	17.2	78.2	143	.83	18
Chev. Corvette ZR-1	'89	6/89	4.7	13.1	110.0	125	.98	
Chev. Lumina	'90	2/90	9.6	17.3	79.2	144	.79	19
Chev. Lumina APV	'90	4/90	12.2	18.7	73.4	146	.73	18
Chev. S-10 Blazer	'90	4/90	11.3	18.0	77.3	139	.69	16
Chev. TwinCam 16V Nova	'88	2/88	10.3	17.6	79.7	136	.79	25
Chrysler LeBaron GTC	'90	12/89	7.2	15.8	88.4	136	.76	20
Chrysler Imperial	'90	3/90	11.0	18.1	77.6	153	.69	17
Chrysler New Yorker	'88	9/88	10.9	18.2	79.0	149	.71	19
Chrysler's TC/Maserati	'89	4/89	7.5	15.9	92.4	137	.78	21
Daihatsu Charade CSX	'88	4/8S	15.5	20.1	68.1	152	.74	38
Daihatsu Rocky SE	'90	4/90	13.3	19.2	68.8	150	.77	23
Dodge Colt GT	'89	3/89	8.3	16.5	85.4	142	.82	23
Dodge Dakota Spt. Conv.	'89	4/89	12.7	19.0	69.7	146	.75	16
Dodge Daytona ES Ltd.	'90	4/90	8.9	16.9	81.8	144	.82	19
Dodge Daytona Turbo Z	'87	8/87	8.1	16.1	86.7	140	.83	21
Dodge Spirit ES	'89	2/89	8.3	16.6	85.3	136	.79	20
Eagle Premier	'88	2/88	11.1	18.2	79.5	161	.79	17
Eagle Summit LX	'89	3/89	10.7	17.9	78.9	134	.85	23
Eagle Talon TSi AWD	'90	3/90	6.6	15.1	91.3	129	.84	20
Ferrari Testarossa	'89	5/89	4.7	14.5	100.7	156	.88	10
Ford Aerostar 4WD	'90	4/90	9.8	17.4	77.3	155	.70	16
Ford Explorer	'90	4/90	9.8	17.3	78.5	141	.68	16
Ford Festiva	'87	5/87	11.9	18.5	74.2	141	.75	31
Ford LTD Crn. Vic LX	'89	8/89	9.7	17.3	80.6	160	.73	17
Ford Mustang GT	'88	1/88	7.2	15.8	92.8	165	.80	16
Ford Probe LX	'90	4/90	9.0	16.7	83.9	124	.80	19
Ford Probe GT Turbo	'88	3/88	7.9	16.1	87.4	136	.84	24
Ford Ranger Supercab	'89	4/89	11.0	18.3	72.2	146	.73	16
Ford Taurus SHO	'89	7/89	8.0	16.2	90.0	156	.83	18
Ford Tempo AWD	'87	3/87	15.3	20.3	68.6	146	.81	22
Ford Thunderbird SC	'89	2/89	7.8	16.2	88.7	133	.84	17
Geo Prizm GSi	'90	3/90	10.0	17.3	81.6	143	.80	25
Geo Storm GSi	'90	3/90	9.6	17.0	81.0	133	.80	26
Geo Tracker	'89	4/89	13.3	19.2	66.6	139	.78	28
GMC Safari AWD	'90	4/90	12.6	18.9	71.4	143	.68	17
GMC S15 Jimmy	'88	8/88	9.8	17.5	78.6	150	.71	17
Honda Accord EX	'90	3/90	10.0	17.2	80.2	134	.79	24
Honda Civic LX Sedan	'88	4/88	10.7	18.1	76.6	140	.77	33
Honda Civic Wgn. 4WD	'89	8/89	10.8	17.8	78.0	147	.77	25
Honda CRX Si	'88	4/88	8.9	16.7	83.0	141	.83	29
Honda Prelude Si 4ws	'88	4/88	9.1	17.1	81.9	148	.83	23
Hyundai Excel GLS	'90	3/90	12.5	17.9	78.0	154	.72	29
Hyundai Sonata GLS V-6	'90	1/90	10.0	17.5	79.6	133	.81	18
Infiniti M30	'90	3/90	10.5	17.8	77.8	129	.83	19
Infiniti Q45	'90	3/90	7.2	15.4	93.0	117	.83	16
Isuzu Amigo SX 4x4	'89	4/89	14.2	19.5	67.8	154	.76	16
Isuzu I-Mark RS	'89	1/89	9.5	17.2	82.9	125	.79	28
Isuzu Impulse Turbo	'88	5/88	9.5	16.9	82.9	147	.81	21
Jaguar XJ-S Convertible	'89	12/89	10.3	17.7	83.3	129	.80	12

REBATES CONTINUE

At this year's National Automobile Dealers Association (NADA) convention in Las Vegas, outgoing NADA President Ron Tonkin called on all auto makers to follow the example of Volkswagen, Porsche, Audi, and BMW to end " 'see-through, Saran Wrap' rebate programs that are confusing to dealers, to salespeople, and to the public." He said today's customers are "sophisticated, educated, and wise, and are sick of the games we're playing."

Tonkin threw a direct challenge to the next speaker, Chrysler Chairman Lee Iacocca. "Wouldn't it be appropriate for the man who led us in to lead us out?" he asked. "If not Lee, then maybe [GM Chairman] Roger Smith and [GM President] Bob Stemple; if not them, then [Ford Chairman] Don Petersen before he leaves or [Ford President] Red Poling as he takes over. But, my God, someone!"

But the Big Three CEOs didn't bite. Iacocca said he would love to end rebates and roll back prices, but when he tried to do that three times this model year, his corporate lieutenants pointedly warned him: "Don't do it. It will make great public relations for a couple of days, then they'll wrap fish in the paper that carried the story."

Roger Smith and Don Petersen, also in Las Vegas, agreed that rebates and myriad customer incentives have gotten out of hand. But, like Iacocca, both said they couldn't stop until the other guys did. And in today's hypercompetitive market, that's not likely to happen.

CLEAN-AIR BILL COULD RESHAPE CARS TO COME

Being against clean air these days is like burning the flag. But the auto industry is warning consumers that a Senate Clean-Air Bill, now on a fast track and expected to be voted on any day, could change the size, shape, price, and availability of cars to come.

The Motor Vehicle Manufacturers Association calls the Senate bill "our worst nightmare," mostly because of a provision calling for a new carbon dioxide standard (CO_2). CO_2 is a natural byproduct of all internal combustion engines. It's not a clean-air issue, but rather an attempt to address global warming by drastically increasing fuel economy—the higher the mpg, the lower the

CO_2 emissions. So what the legislation does, in effect, is create a *de facto* fuel economy standard of 40 mpg by the year 2000.

Both domestic and import auto makers say there's no way to meet that standard point without drastically reducing the size and power of many cars and eliminating most mid- and full-size cars. Ford says cars would have to fall from a current average weight of 3375 to 2000 lb, engine displacement from 2.7 to 1.4 liters, and interior volume from 98 to 80-85 cu ft.

There is no magic carburetor, they point out. Most of the newer technologies—electronic engine management, advanced aerodynamics, multivalve engines, front-wheel drive, etc.—have already been used extensively to meet the current corporate average fuel economy (CAFE) standard of 27.5 mpg.

The auto industry is also concerned about Senate requirements for tough new tailpipe emissions by 1993, and a second round of reductions in 2003 that are twice as tough. Again, auto makers argue that, at this time, the technology to meet the 2003 standards does not exist. Plus, the cost/benefit ratio is a bad deal. The Environmental Protection Agency estimates the 2003 standard would cost a total of $6.5 billion, or $500 per car, for only a 2% reduction in emissions. Auto makers point out that '90 passenger cars already emit 96% less hydrocarbons and carbon monoxide and 76% less nitrogen oxide than '70 models. If just left in place, these standards would reduce ozone levels by 32-35%.

Auto makers are more favorable to tailpipe standards proposed in a House clean-air bill, which mirror standards to take effect in California and eight Northeast states in 1993, and represent a reasonable compromise between industry and environmental factions in Congress.

The House bill, however, has a requirement for alternative-fuel vehicles proposed by President Bush. Under this provision, which is also expected to be added to the Senate version, auto makers would have to produce 500,000 cars per year fueled by alcohol blends or natural gas in 1995, 750,000 in 1996, and 1 million per year from 1997 to 2004. Manufacturers and dealers are afraid customers won't accept the new technology or be willing to pay higher prices for it and higher fuel prices.

The auto industry wants more research on alternative-fuel vehicles before they are mandated. They also want to soften the Senate tailpipe requirements and remove any changes in fuel-economy standards, which they believe should be debated on an individual basis. As a separate issue (there are already seven fuel economy bills pending in Congress), auto makers believe they stand a better chance of turning this from an environmental to a consumer issue. Plus, they won't be cast in the villainous role of opposing clean air.

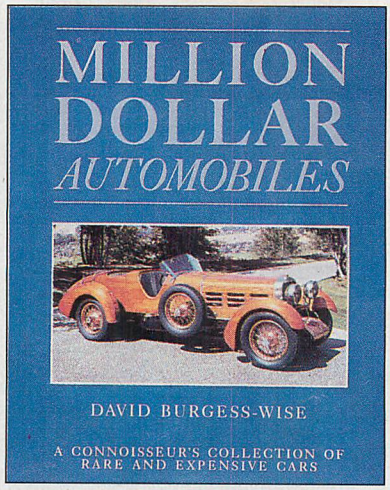
MOTOR TREND'S Road Test Review

Model	Year	Issue	0-60 (sec)	¼ Mile (sec)	¼ Mile (mph)	Brake 60-0 (ft)	Lat. Accel. (g)	EPA City (mpg)
Jaguar XJ6 Sovereign	'90	4/90	9.0	16.8	86.1	127		17
Lexus ES 250	'90	2/90	10.3	17.7	79.3	137	.77	19
Lexus LS 400	'90	3/90	8.1	16.1	89.3	126	.79	18
Lincoln Continental	'90	3/90	11.4	18.4	74.6	150	.75	18
Lincoln Mark VII LSC	'88	8/88	7.9	16.2	89.8	138	.78	17
Lincoln Town Car	'90	2/90	10.2	17.5	80.0	142	.71	17
Lotus Esprit Turbo	'88	2/88	5.8	14.4	95.3	130	.89	23
Mazda MX-5 Miata	'90	3/90	9.4	16.9	77.5	122	.89	25
Mazda MX-6 4WS	'89	4/89	7.4	15.7	91.2	130	.87	21
Mazda Protegé LX	'90	3/90	8.9	16.8	82.7	140	.79	25
Mazda RX-7 Convertible	'89	8/89	10.7	18.1	82.6	131	.83	17
Mazda RX-7 Turbo II	'89	8/89	6.4	15.0	93.7	123	.87	16
Mazda 626 4WS	'88	8/88	7.9	16.3	85.7	134	.80	19
Mazda 929 S	'90	1/90	10.0	17.5	81.3	134	.76	18
Mercedes-Benz 260E	'88	11/88	9.6	17.4	82.6	135	.79	20
Mercedes-Benz 300SL	'90	12/89	9.1	17.0	86.6	128	.83	16
Mercedes-Benz 500SL	'90	3/90	6.7	14.9	97.9	119	.80	14
Mercedes-Benz 560SEC	'88	9/88	8.3	16.6	87.6	142		13
Mercury Cougar XR7	'89	1/89	8.3	16.5	87.8	130	.83	17
Mercury Tracer	'87	8/87	11.9	18.5	74.2	154	.73	28
Merkur Scorpio	'88	6/88	10.2	17.5	80.1	123	.80	17
Mitsubishi Cordia Turbo	'88	5/88	9.2	17.0	82.2	140	.75	22
Mitsubishi Eclipse GSX	'90	3/90	6.5	15.1	91.2	120	.83	20
Mitsubishi Galant GS	'89	3/89	9.0	16.8	84.3	135	.83	21
Mitsubishi Mirage LS	'89	3/89	12.5	18.8	73.6	154	.79	29
Mitsubishi Mirage Turbo	'89	3/89	7.9	16.2	87.1	140	.82	23
Mitsubishi Montero LS	'89	4/89	11.7	18.8	70.5	147	.75	17
Nissan Axxess	'89	4/89	10.9	17.9	76.0	133	.72	20
Nissan Maxima GXE	'89	6/89	9.8	17.3	80.9	145	.77	21
Nissan Maxima SE	'89	3/89	8.9	16.9	83.0	143	.81	20
Nissan Pathfinder	'90	4/90	11.7	18.3	75.7	157	.73	15
Nissan Pulsar NX SE	'88	5/88	9.3	17.0	81.8	138	.85	23
Nissan Stanza GXE	'90	3/90	9.0	16.8	82.3	128	.79	22
Nissan 200SX SE	'88	5/88	10.0	17.0	82.0	147	.80	19
Nissan 240SX SE	'89	3/89	9.9	17.3	81.0	134	.89	20
Nissan 300ZX Turbo	'90	3/90	6.0	14.4	102.3	116	.89	24
Oldsmobile Calais GT	'88	8/87	9.2	17.0	81.0	143	.84	25
Oldsmobile Cutlass Sprm.	'90	2/90	10.1	17.5	78.1	137	.81	18
Oldsmobile Delta 88	'87	4/87	10.4	17.8	76.9	149	.81	19
Oldsmobile Silhouette	'90	4/90	12.0	18.6	72.9	137	.74	18
Oldsmobile Trofeo	'90	2/90	9.5	17.1	81.2	128	.84	18
Peugeot 405 Mi 16	'89	3/89	9.9	17.3	82.4	141	.86	20
Peugeot 405S Sportwagon	'90	2/90	10.8	17.9	78.7	151	.86	20
Plymouth Acclaim LX	'89	5/89	9.9	17.6	80.3	135	.79	18
Plymouth Colt GT	'89	3/89	8.1	16.4	86.2	138	.81	23
Plymouth Laser RS-T	'90	12/88	7.5	15.9	90.6	144	.84	22
Pontiac Bonneville SSE	'88	4/88	10.1	17.5	79.8	137	.81	19
Pontiac Fiero GT	'88	3/88	8.7	16.4	81.9	141	.84	17
Pontiac Firebird Formula	'88	1/88	7.5	16.0	88.5	153	.89	16
Pontiac Grand Am SE	'90	1/90	7.6	16.1	89.0	139	.85	24
Pontiac Grand Prix	'90	2/90	7.7	15.6	87.8	140	.80	16
Pontiac LeMans	'88	4/88	11.0	18.1	75.0	161	.80	25
Pontiac Sunbird GT	'89	9/89	7.8	16.1	86.9	136	.87	20
Pontiac Trans Am GTA	'88	7/88	7.4	15.9	90.0	141	.87	16
Pontiac Trans Sport	'90	4/90	12.6	18.9	72.7	141	.74	18
Pontiac Turbo GP	'89	8/89	8.2	16.3	84.9	149	.84	19
Pontiac 20th Trans Am	'89	3/89	5.4	14.2	95.8	142	.84	
Pontiac 6000 STE AWD	'89	7/89	10.0	17.5	79.0	144	.78	19
Porsche Carrera 4	'89	10/89	5.5	13.9	100.4	127	.84	15
Porsche 911 Speedster	'89	1/90	6.0	14.7	95.7	130	.87	18
Porsche 928S 4	'88	4/88	6.1	14.4	102.4	130	.87	15
Porsche 944 S2	'89	8/89	6.6	14.9	84.9	127	.87	17
Porsche 944 S2 Cabriolet	'90	12/89	6.8	15.0	93.4	120	.88	17
Porsche 944 Turbo S	'88	5/88	6.6	15.1	97.4	124	.87	25
Renault Medallion	'87	3/87	11.0	17.9	78.1	145	.75	26
Saab 900 Turbo Conv.	'87	1/87	8.7	16.5	85.8	138	.79	21
Saab 9000 CD Turbo	'89	2/89	9.1	16.9	81.7	134	.79	20
Sterling 827Si	'90	3/90	8.6	16.4	86.5	120	.81	19
Subaru Justy GL ECVT	'89	3/89	14.7	20.0	68.3	151	.74	34
Subaru Legacy LS	'90	3/90	10.5	17.4	78.6	136	.73	21
Subaru XT6	'88	5/88	10.4	17.5	78.4	148	.76	20
Suzuki Sidekick JX	'89	4/89	12.4	18.8	68.6	139	.78	28
Suzuki Swift GTI	'89	9/89	8.3	16.6	84.7	129	.79	29
Toyota Camry All-Trac	'88	8/88	11.5	18.3	76.4	149	.78	22
Toyota Celica A-T Turbo	'90	3/90	8.3	16.0	87.5	129	.83	19
Toyota Corolla GT-S	'88	4/88	10.2	17.5	80.9	142	.83	25
Toyota Cressida	'89	6/89	9.6	17.3	84.2	134	.80	19
Toyota MR2 Turbo	'91	4/90	6.5	14.6	94.8	118	.89	20
Toyota Supra Turbo	'88	9/88	7.8	15.8	88.4	152		18
Toyota Xtracab SR5 V-6	'89	4/89	10.0	17.7	76.0	130	.80	19
Toyota 4Runner	'90	4/90	11.3	18.3	75.2	143	.69	16
Volkswagen Corrado	'90	3/90	9.3	16.8	83.8	126	.83	21
Volkswagen Fox Wagon	'88	2/88	11.7	18.4	73.9	133	.81	25
Volkswagen Golf GT	'88	8/88	10.9	18.0	77.4	141	.84	25
Volkswagen Jetta GLI	'88	1/88	10.2	17.5	81.2	150	.83	22
Volkswagen Passat GL	'90	4/90	10.5	17.6	79.8	131	.82	21
Yugo GVX	'88	12/88	13.6	19.4	70.8	162	.71	29

TRENDS

REVIEW

***Million Dollar Automobiles*, by David Burgess-Wise. Hardcover; 12x9 in.; 240 pages; 212 color photos. Chartwell Books, 1989. ISBN: 1-55521-411-8; $17.98.**



Remember *Brave New World*, that forbidding tale of a high-tech future where people are divided into intellectual castes with the brilliant Alphas on top and the lowly Epsilons doing virtual slave labor at the bottom?

Automotive books remind me of *Brave New World*. Most of these books are sturdy Gammas and Deltas, going quietly about their business like clockwork figures. Certain extraordinary books are Alphas, usually specializing in Ferraris or Porsches. They can cost $200 or more for big pages, superior printing and paper, and usually a leather-covered or decorated slipcase. Even some grimy Gammas, poorly spelled and out of focus, slink across our review desk now and then.

Million Dollar Automobiles is a strong Beta. It's not among the most expensive and exclusive, but it is an excellent piece of work in a difficult genre, the anthology.

The author has almost whimsically chosen a collection of vehicles as diverse as the automobile itself. The only connection between these 31 vehicles is that all could fetch a million dollars or more at auction on the world markets. And that's it. No other attempt is made to explain a Rolls-Royce Silver Ghost and a Voisin V-12 fraternizing with a SWB GTO Ferrari and a Ford GT-40.

Within this "Million Dollar" club, there are beautiful cars and ugly ones. There are big town cars and phaetons, as well as close-coupled LeMans racers. Vanished marques are here, like Bugatti, Maybach, and Hispano-Suiza; existing marques too, like Mercedes.

There's even a total ringer in the Lunar Rover (not connected to Range Rover). This is *the* Lunar Rover, the vehicle that went to the moon and stayed there.

As the first automobile to traverse another celestial body, the Rover is indeed interesting. Shod with tires of titanium piano-wire mesh, this electric vehicle had hub-mounted electric motors, all-wheel drive, 4-wheel steering with selectable modes, and an onboard computer and communications link. Sounds like the next-generation Subaru to me!

That's just part of the fun in this big, handsome book. Photography by Laurie Caddell is outstanding, with some of the two-page color prints so striking they make the cars seem alive, touchable. The overall design, with photos dancing across the pages, hefty captions, and page numbers setoff in tiny blue tabs, is as refreshing as ice water in July.

Witty and surprisingly detailed text and captions by David Burgess-Wise are a highlight of this volume. His style is typically British-droll, but his manner is smooth and captivating. Even abominations such as the Delahaye Type 145 and the Pierce-Arrow V-12 aerosedan are made interesting by Burgess-Wise's light touch and his grasp of automotive history.

While automotive publishers churn out many coffee-table books every year, *Million Dollar Automobiles* stands among the best of the Betas. Even without winning the lottery, you can collect 31 million-dollar automobiles just by nabbing this large-format anthology.

—Greg Von Dare

TRY BEFORE YOU BUY

The purchase of a new automobile is frequently the second biggest single investment most people ever make. While a traditional test drive is always a good idea, more and more potential buyers have turned to local rent-a-car outlets to help finalize their choices. Depending on the vehicle in question, rental fees can range from $50 to $200 a day. And given the nature of the game, slipping into a more costly car generally requires additional proof of insurance and a credit card with at least a $2500 and often as much as a $5000 limit. But regardless of cost, it's an investment that could pay long-term dividends.

JOE GOEBEL

STICKER SHOCK REVISITED

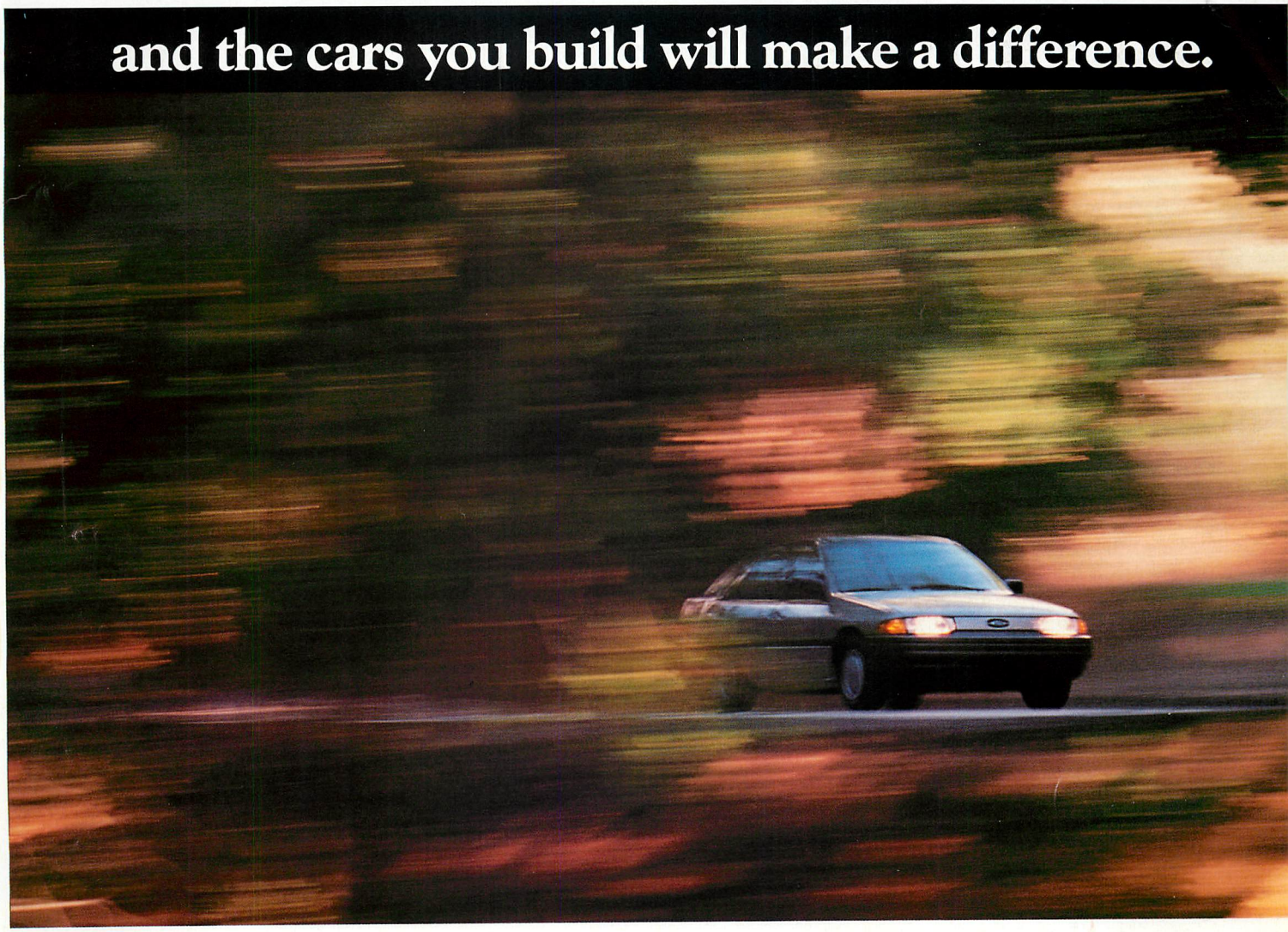
Yes, the '80s was indeed an era of sharply rising new-car prices. Buyers watched the bottom-line numbers on Monroney stickers more than double during that 10-year period. From 1982 onward, the average price of a foreign car exceeded that of the average domestic. By the end of the decade, that differential had

AVERAGE NEW-CAR PRICES

Year	Overall Avg.	Domestic Avg.	Import Avg.
1980	$ 7,574	$ 7,609	$ 7,482
1981	$ 8,910	$ 8,912	$ 8,896
1982	$ 9,890	$ 9,865	$ 9,957
1983	$10,640	$10,559	$10,873
1984	$11,450	$11,172	$12,345
1985	$12,022	$12,526	$13,815
1986	$12,894	$12,526	$13,815
1987	$13,613	$13,210	$14,515
1988	$14,485	$14,019	$15,620
1989	$15,393	$14,920	$16,575

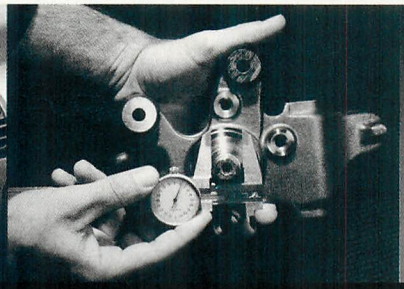
Source: U.S. Department of Commerce

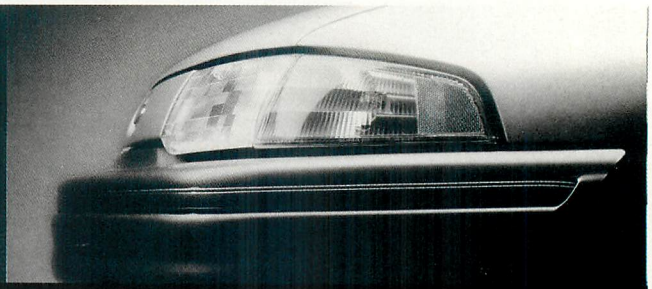
Make a difference in the way you build cars
and the cars you build will make a difference.



Ford

The 1991 Ford Escort. Designed and built to rival the best small cars in the world. To describe the new Escort Sedan, GT and Wagon as "small" cars would only be partially correct. For instance, the advances in the development process were significant. The changes we made along the assembly lines were huge. And the differences this has made are anything but small. In fact, Ford put together their global resources to create this line of cars. We put two billion dollars into design and engineering; into state-of-the-art facilities; and into unprecedented worker training. The commitment is extraordinary. And so are the results.





Introducing a car that changes the idea that

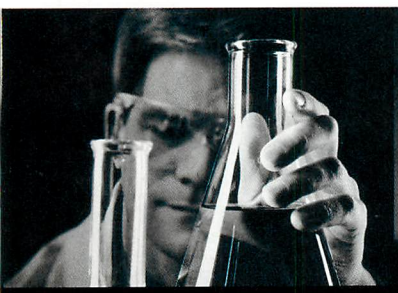
Cars that advance design. A brief glance tells you this is more than just a pretty face-lift. Its sculpted exterior impresses you with improved aerodynamics.

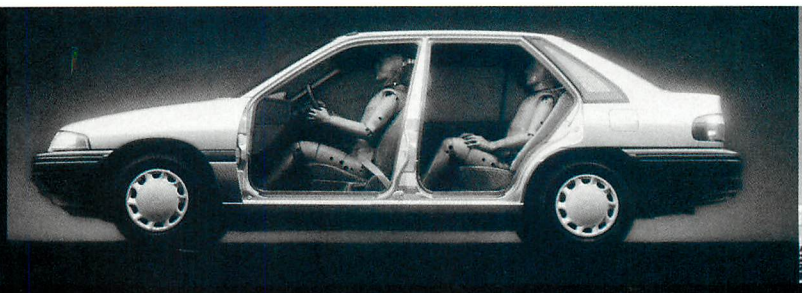
This new thinking continues inside, where you'll be greeted by more passenger room (with room for five). The new Escort also gives all five passengers more headroom. And the LX's clever split/fold rear seat gives you easy access to the cargo area.

But clever design is not reserved for the back seat. From the comfortable contours of the driver's seat, you'll discover a wider expanse of glass for better visibility and user-friendly controls at your fingertips.

With a new way to build them. It was obvious that the business of building the next Escort couldn't be business as usual. And since ensuring quality workmanship begins with the people who put it together, that's where we began. We employed extensive worker involvement in designing individual work stations, organizing specialized work groups and streamlining the process. Assurance of quality is the responsibility of every single person involved. Because it's this kind of hands-on attention to detail that can deliver a world-class automobile.

It's a process that's dramatically different. But then we wanted a car that's dramatically different.



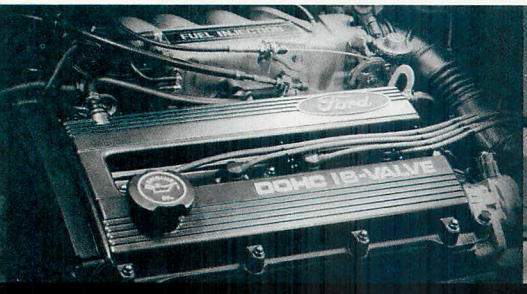


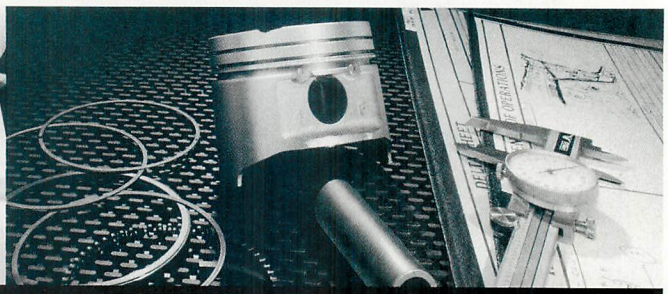
the only world-class small cars are imports.

With engineering that's equally advanced. Not even Escort's dramatic design can overshadow its engineering achievements. Let's begin with the exclusive computer-controlled 1.9L SEFI engine, the only engine in its class to feature Sequential Electronic Fuel Injection for improved performance feel. A new independent suspension design, new front and rear stabilizer bars, along with a new rack-and-pinion steering system all add up to a car that is as nice moving as it is standing still.

The Next Escort

The 1991 Ford Escort GT. A new way to think about fun small GTs. When we started its design, we obviously wanted our new GT to master a list of performance goals on paper. But we wanted its performance to affect more than the numbers, namely the person behind the wheel. In other words, get the driver as revved up as the engine. So we made sure that the functional equipment on the new Escort GT would enhance its "feel" on the road. From the engine to the cockpit, we focused on the driver's performance as well as the car's. It called for some very serious technology. But then, we were calling for some very serious fun.





It changes the idea that serious engineering

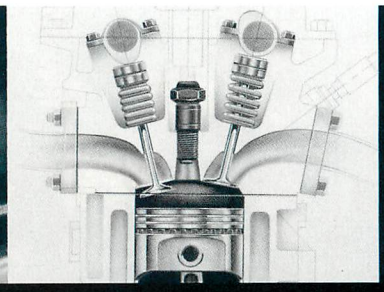
Engineered for performance. Now for the fun part. Escort GT's all-new 16-valve, dual overhead cam 1.8 liter engine goes from a purr to a roar in seconds. With the help of multiple-port electronic fuel injection, it generates 127 horses at 6500 rpm, so the good times won't pass you by.

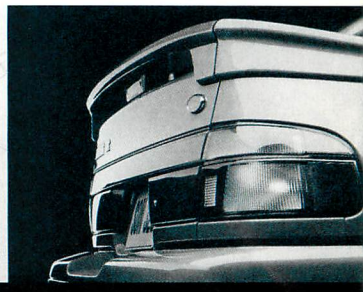
The 5-speed manual transaxle was designed for the 1.8L's increased power output, and its sport suspension helps make short work of challenging curves.

Add to the list a more responsive power rack-and-pinion steering system, four-wheel power disc brakes and Goodyear Eagle GT Plus 4 radials, and you can see why our engineers still believe in Santa Claus.

Built to new levels of precision. Accuracy is all-important on a GT. So, like all the other cars in the new Escort line, the exciting Escort GT is put together with great attention to detail. Robot welders ensure consistency. Parts-handling automation keeps components intact and unblemished. Pieces have sized holes instead of slots for an exact fit. And because exactness is exactly what we want, we use sophisticated measuring equipment to confirm that parts meet design specs within four thousandths of an inch.

So as you can see, we put as much high technology behind the car as we put into the car.





can only be enjoyed by serious engineers.

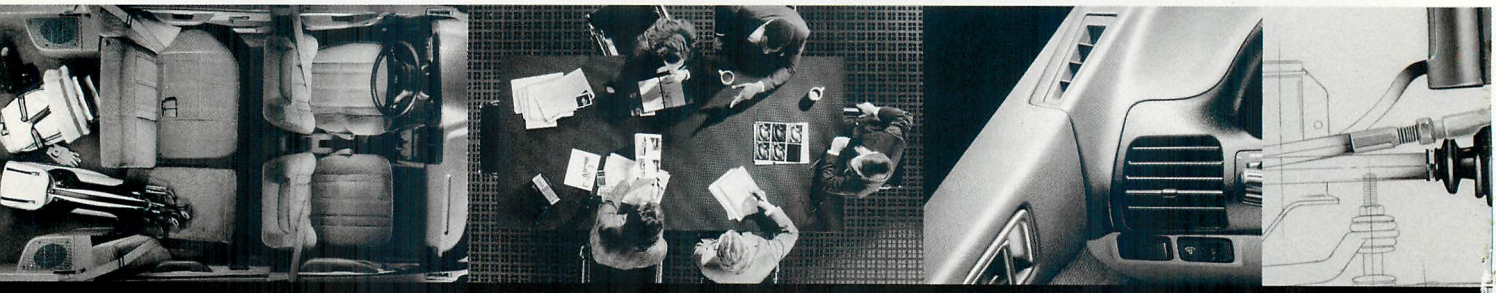
Designed for action. The Escort GT's looks definitely put you in high gear. From the integrated air dam up front to the spoiler on the back, the GT moves through the wind as you move through traffic.

Turning inside, you'll find a number of interior features that are also locked into performance. A series of analog gauges, complete with tachometer, a special-grip steering wheel and firm sport seats make the inside of the new Escort GT as inviting as the open road.

The Next Escort GT

The 1991 Ford Escort Wagon. Big thinking in a new small wagon. We began by reshaping the way we looked at small wagons. Practicality no longer ruled out style. Taurus Wagon had proved that. And the modern wagon no longer had to drive like the covered version. Taurus, again. So, loaded with new design and engineering ideas, we set out to create a vehicle with enough room to leave nothing behind but conventional thinking.

The result, as you can see, is nothing short of extraordinary. No matter which way you look at it; from the outside or from the driver's seat, there's nothing quite like it. Which is just how we thought you'd like it.



And changes the idea that small wagons

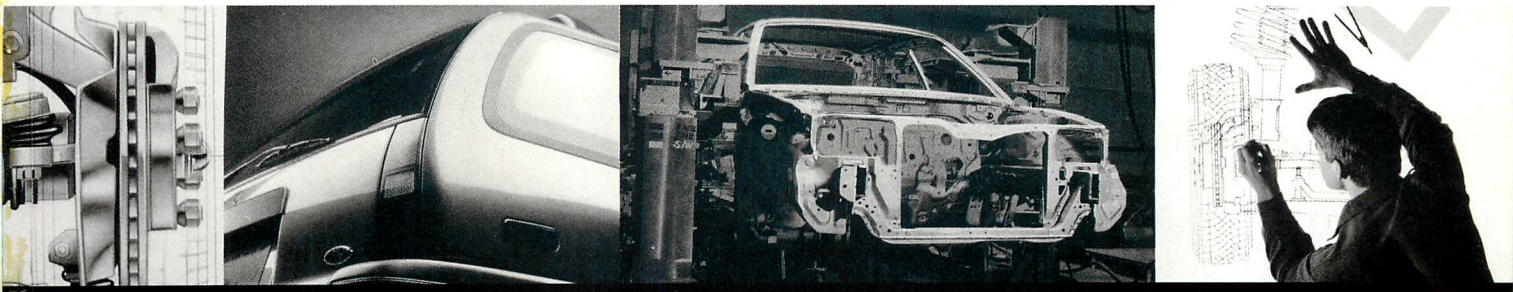
Design with a purpose. Although it looks unlike any small wagon you've seen, the new Escort Wagon is still very much a wagon. Its new design now offers more passenger and cargo room than ever, with room for five and a spacious 66.9 cubic feet of loading area (with rear seat backs folded). Access is made easy through either the wide, one-piece liftgate or the 60/40 split/fold back seat.

A redesigned engine, suspension and a new rack-and-pinion steering system make easy work of hard work. In fact, it's such a pleasure to drive, you may start wishing the Escort Wagon couldn't carry so much, so you could make more trips instead.

With unexpected styling.
Traditionally, small wagons have been synonymous with the word "square." In all its connotations. But with the new Escort, Ford has thrown conventional design yet another curve. Or should we say curves? You'll find long, sleek lines on every side of this vehicle. Including the inside.

The instrument panel of the new Escort Wagon blends smoothly with the door panels, offering yet one more example of detailed design. The front seats are contoured, so they're appealing to the body as well as to the eye.

So from purely a styling point-of-view, the Escort Wagon is pure style.



have little room for sophisticated design.

And built with durability in mind. The new Escort Wagon obviously has many strong points. And a lot of them are in how they're built. Because like every new Escort, it has more rigid body panels and stronger stress points for greater structural support. We gave it isolated subframes to reduce vibration and noise, and more galvanized steel to reduce corrosion. As well as a more chip-resistant finish at our new paint facility. So your first impression of the new Ford Escorts can be a lasting one.

The Next Escort Wagon

The Next Escort.

A new line of thought. A new line of cars.

Ford

Have you driven a Ford...lately?

PIRELLI P500 PREMIERS

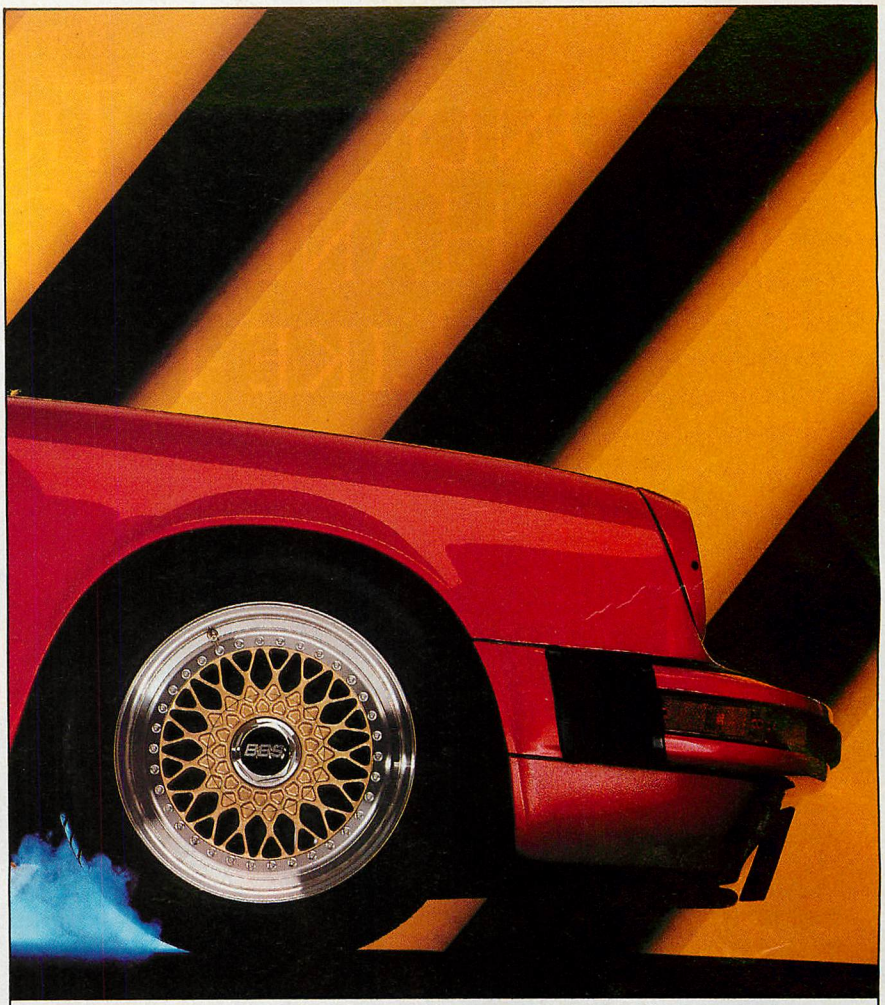
Pirelli has just added a new HR-rated all-season radial to its lineup, the P500. Superceding the P77 and initially available in 60-, 65-, and 70-series, the P500 features an asymmetric tread pattern and is designed to deliver a smooth, quiet ride over all road surfaces. Our initial encounter with the new P500 took place at Michigan International Speedway on a cold, rainy winter day. After several hours of slogging through a variety of driving maneuvers, we came away feeling this new Pirelli will offer a formidable challenge to the current king of the all-weather hill, Goodyear's Eagle GT+4.

—Thom Cannell

reached $1655. The largest single-year jump took place between 1980 and 1981, when the overall average price rose by $1336.

Despite escalating costs, the National Automobile Dealers Association (NADA) claims new-vehicle affordability has remained surprisingly steady for the average family, which has continued to spend about 12% of its annual income on new-car purchases. The reason was a combination of relatively stable interest rates and much longer loan periods. By 1988, the average payback period had risen to 56 months. But in 1989, auto makers finally realized that longer loans were increasing default rates and keeping repeat buyers out of the market too long. The average loan length fell to 54 months and payments as a percent of income rose, accordingly, to 12.7%.

NADA expects this trend to continue in 1990 as auto makers push for even shorter loans, while sticker prices rise and personal-income growth is expected to slow. Demographic and tax changes will also play a part. With deductability of interest on consumer loans disappearing altogether over the next two years, the final cost of any financed purchase will rise accordingly. And as baby-boomers age into their 30s and 40s, they're likely to spend less on durable goods and put more into savings.



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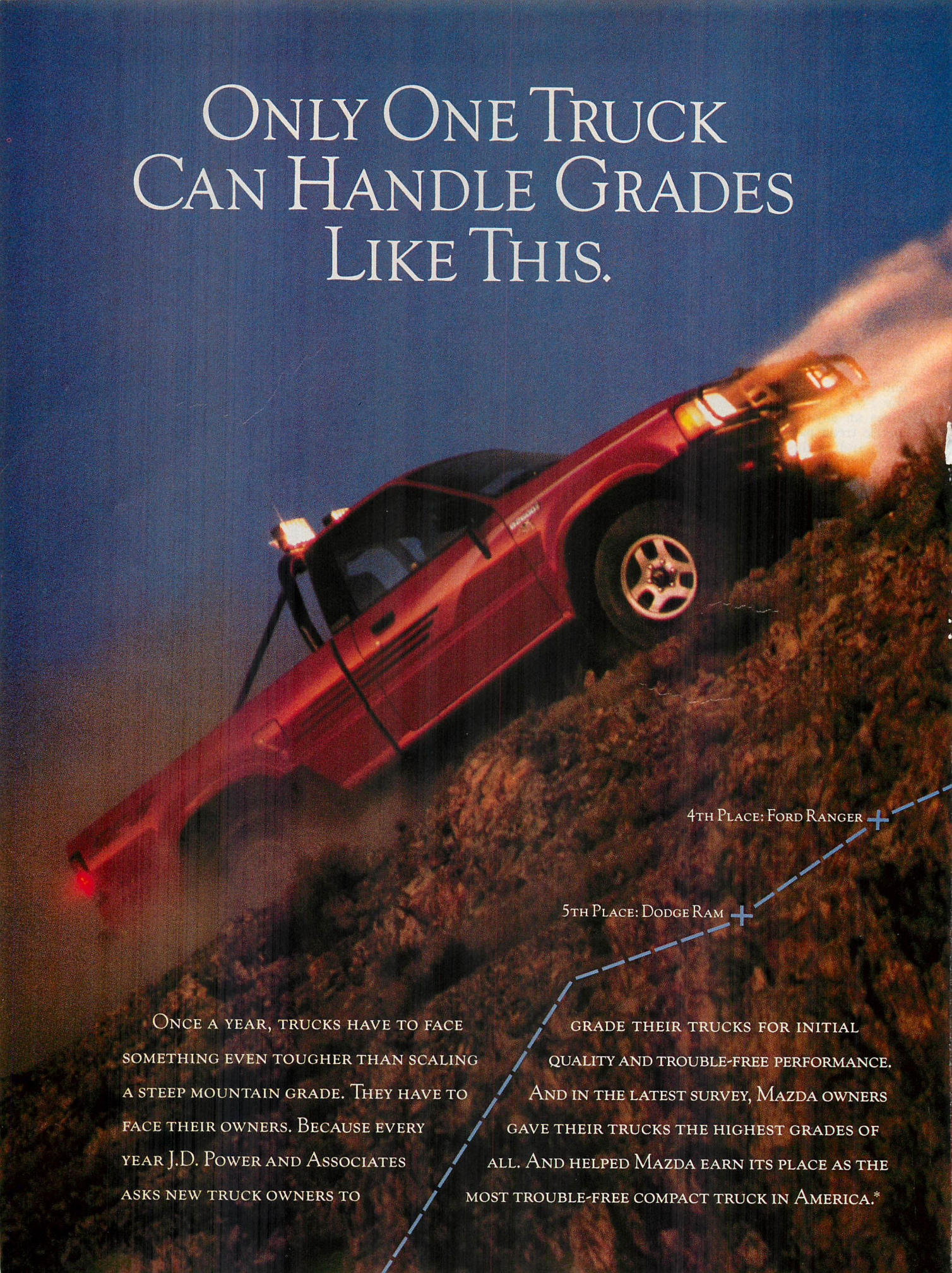

Once a year, trucks have to face something even tougher than scaling a steep mountain grade. They have to face their owners. Because every year J.D. Power and Associates asks new truck owners to grade their trucks for initial quality and trouble-free performance. And in the latest survey, Mazda owners gave their trucks the highest grades of all. And helped Mazda earn its place as the most trouble-free compact truck in America.*

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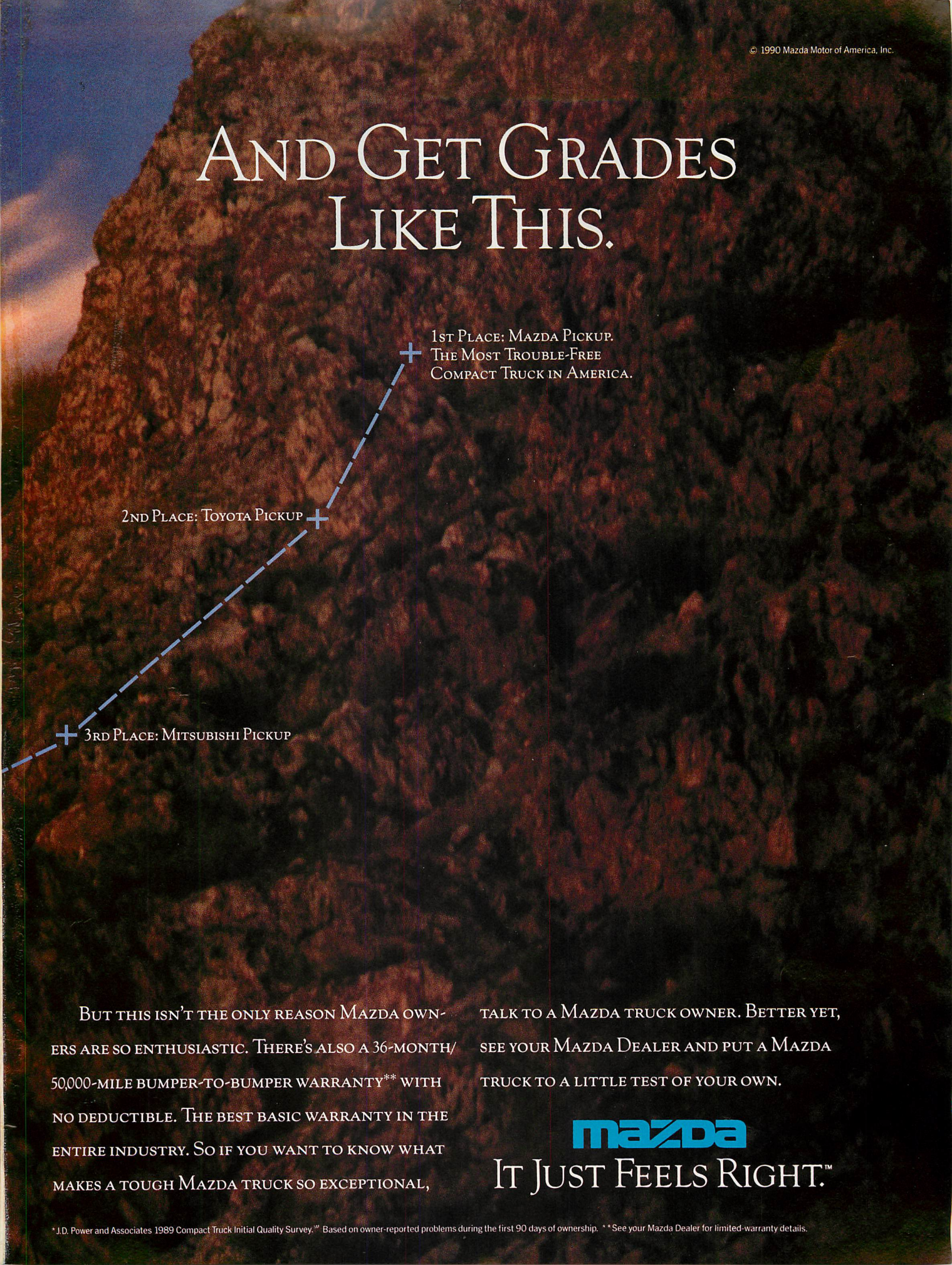
And Get Grades Like This.



But this isn't the only reason Mazda owners are so enthusiastic. There's also a 36-month/50,000-mile bumper-to-bumper warranty** with no deductible. The best basic warranty in the entire industry. So if you want to know what makes a tough Mazda truck so exceptional, talk to a Mazda truck owner. Better yet, see your Mazda Dealer and put a Mazda truck to a little test of your own.

mazda

It Just Feels Right.™

*J.D. Power and Associates 1989 Compact Truck Initial Quality Survey.℠ Based on owner-reported problems during the first 90 days of ownership. **See your Mazda Dealer for limited-warranty details.

LAMBORGHINI

COVER STORY

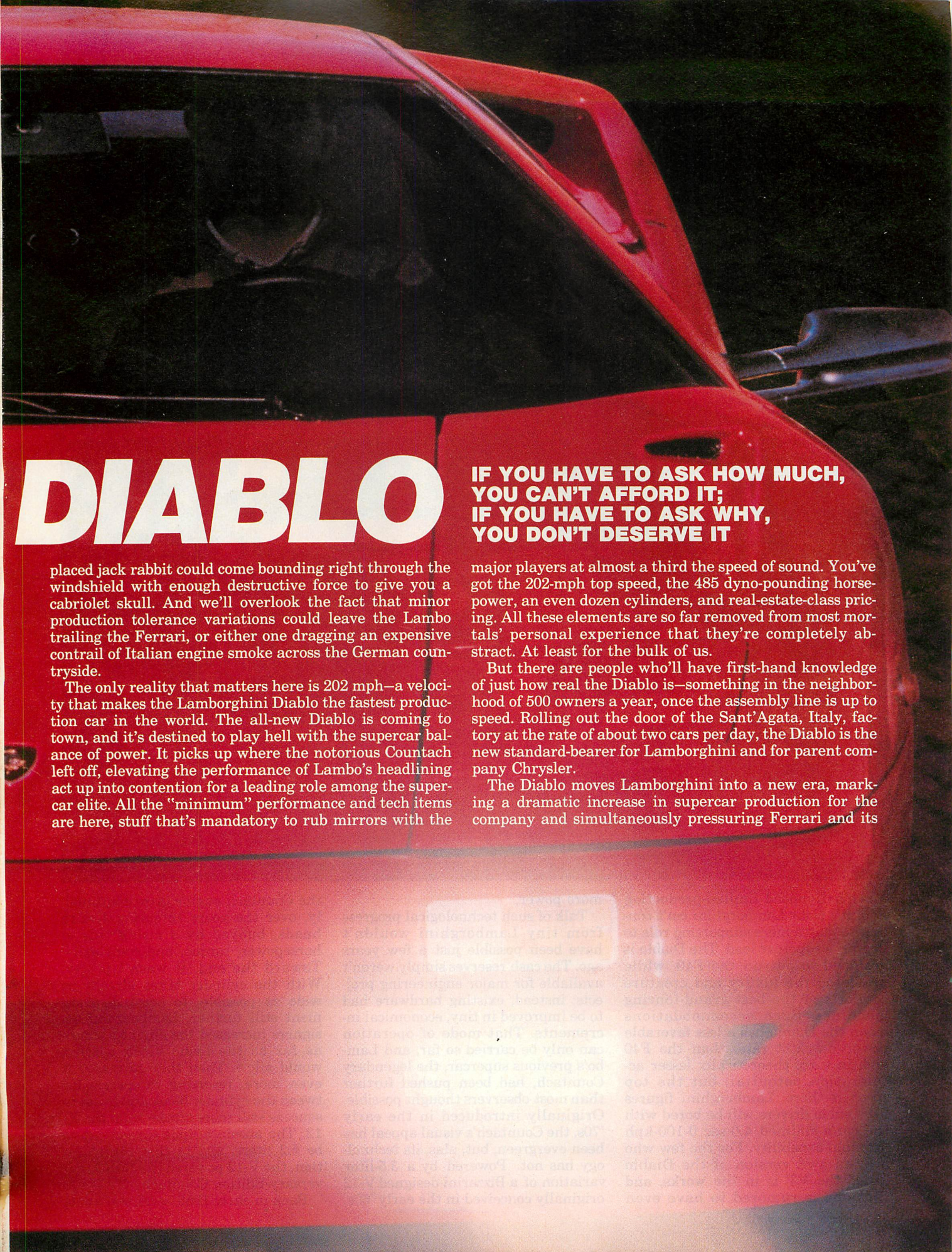
by Jeff Karr

Important fact for supercar shoppers: flat-out, Lamborghini's new Diablo goes 202 mph, according to the company's testing in Nardo, Italy. You are no doubt aware of the fact that Ferrari's F40 is only capable of a mere 201-mph top speed. This means, should you ever be merging onto the famed German autobahn in your Diablo, right at top speed, and find yourself dead even with a flat-out F40, you'll be able to laugh heartily in the Ferrari driver's face. You'll own the road. You'll creep ahead, mocking the prancing stallion with a comfortable 1-mph advantage. As the wheezing F40 fades helplessly in your mirrors, you'll make colorful Italian hand gestures and pretend to pick your nose—all quite purposefully and plainly visible to the Ferrari pilot through the Lambo's gun-slit rear window. And you'll laugh—a sophisticated sort of self-satisfied laugh that reeks of money.

We thought you'd like to know.

Never mind that the Lambo will be sucking up fuel at such a furious pace that it can only run for about 40 minutes wide open (about 135 miles). Or that it can only pull about a 3600-ft lead on the Ferrari before depleting all 26.4 gal on board and coasting to a stop, while the Ferrari with its greater range continues on past the inert Diablo with an insolent toot of its dual Fiams. Never mind that the possibility of finding 135 miles of deserted autobahn that's fit for such velocity is roughly equivalent to "My Mother the Car" being brought back to prime-time network television. Don't worry about what would happen if you blew a tire at such speed, or the fact that one mis-

PHOTOGRAPHY BY NEIL B. NISSING



DIABLO

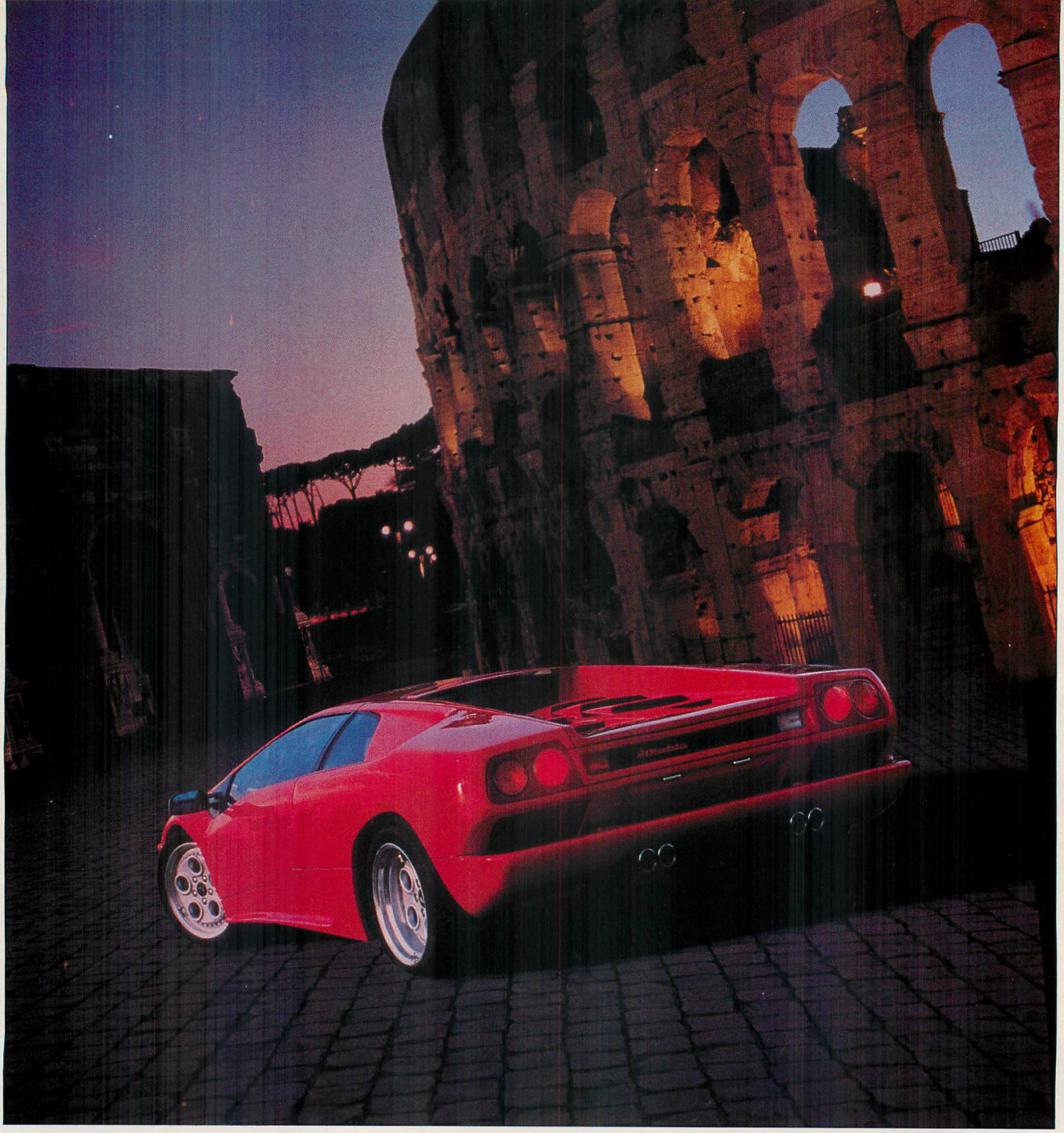
IF YOU HAVE TO ASK HOW MUCH, YOU CAN'T AFFORD IT; IF YOU HAVE TO ASK WHY, YOU DON'T DESERVE IT

placed jack rabbit could come bounding right through the windshield with enough destructive force to give you a cabriolet skull. And we'll overlook the fact that minor production tolerance variations could leave the Lambo trailing the Ferrari, or either one dragging an expensive contrail of Italian engine smoke across the German countryside.

The only reality that matters here is 202 mph—a velocity that makes the Lamborghini Diablo the fastest production car in the world. The all-new Diablo is coming to town, and it's destined to play hell with the supercar balance of power. It picks up where the notorious Countach left off, elevating the performance of Lambo's headlining act up into contention for a leading role among the supercar elite. All the "minimum" performance and tech items are here, stuff that's mandatory to rub mirrors with the major players at almost a third the speed of sound. You've got the 202-mph top speed, the 485 dyno-pounding horsepower, an even dozen cylinders, and real-estate-class pricing. All these elements are so far removed from most mortals' personal experience that they're completely abstract. At least for the bulk of us.

But there are people who'll have first-hand knowledge of just how real the Diablo is—something in the neighborhood of 500 owners a year, once the assembly line is up to speed. Rolling out the door of the Sant'Agata, Italy, factory at the rate of about two cars per day, the Diablo is the new standard-bearer for Lamborghini and for parent company Chrysler.

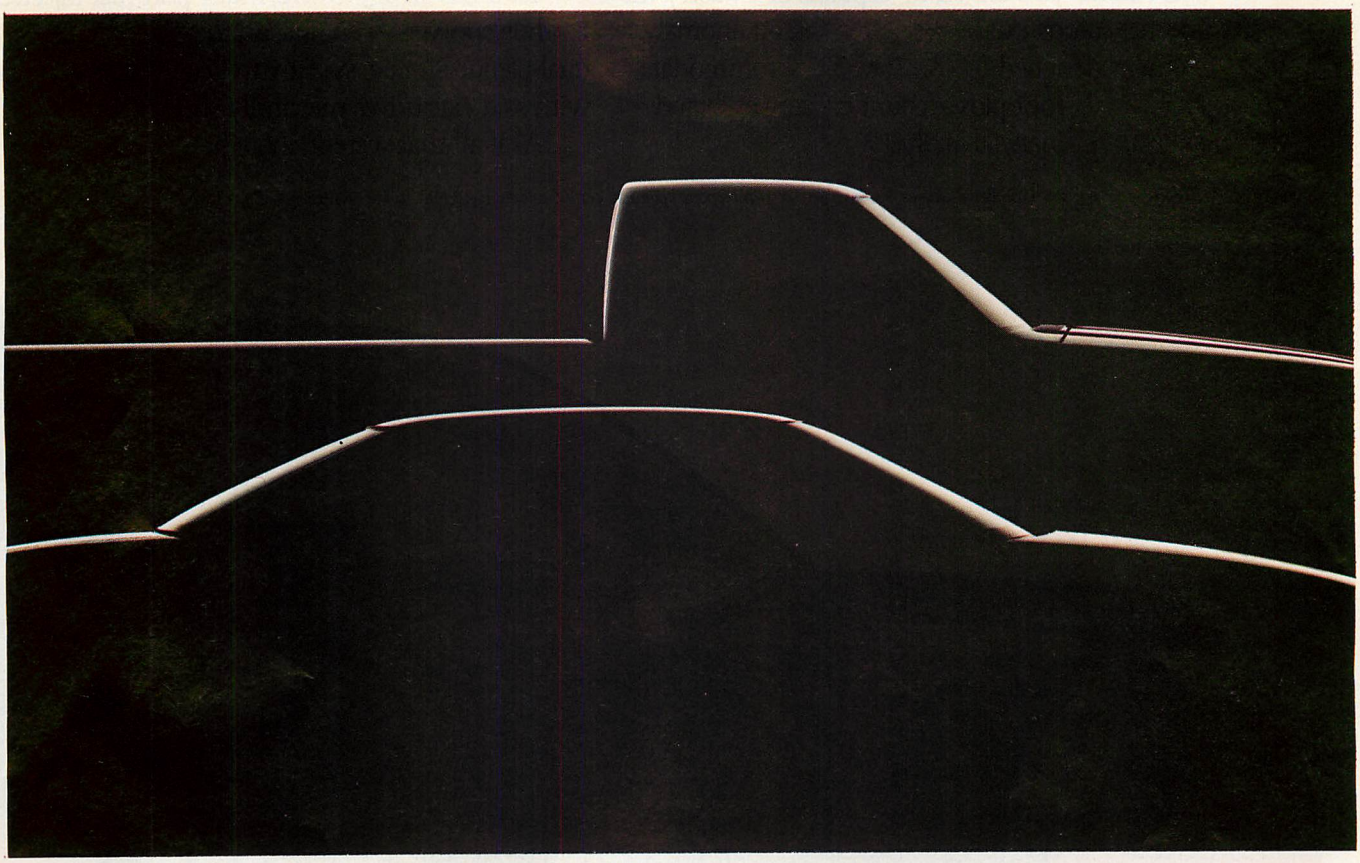
The Diablo moves Lamborghini into a new era, marking a dramatic increase in supercar production for the company and simultaneously pressuring Ferrari and its



much-ballyhooed limited-production F40. It's clear Lamborghini isn't content to play a mere supporting role to Ferrari's supercar lead. The Diablo is designed to outrun the F40, while providing the luxury and creature comforts of the best grand-touring machines. Such accommodations mean the Diablo has a less favorable power-to-weight ratio than the F40 and, in turn, theoretically lesser acceleration potential, but the top speed is there. Lamborghini figures few Diablo drivers will be bored with the car's claimed 4.0-sec 0-100-kph (62-mph) capability. For the few who are, an awd version of the Diablo called the VT is in the works, and that one is rumored to have even more power.

Talk of such technological progress from tiny Lamborghini wouldn't have been possible just a few years ago. The cash reserves simply weren't available for major engineering projects; instead, existing hardware had to be improved in tiny, economical increments. That mode of operation can only be carried so far, and Lambo's previous supercar, the legendary Countach, had been pushed further than most observers thought possible. Originally introduced in the early '70s, the Countach's visual appeal has been evergreen, but, alas, its technology has not. Powered by a 3.5-liter variation of a Bizzarini-designed V-12 originally conceived in the early '60s, the Countach engine grew continually, over the years sprouting 4-valve heads, buoyed by a rising tide of horsepower, torque, and complexity. Toward the end, it wasn't pretty. With the cylinder bores already as wide as possible, to boost displacement still further, Lamborghini designers increased the engine's stroke as far as the basic block casting would allow. Then they increased it even more, resorting to spacers between the cylinder block and heads to squeeze still more stroke from the V-12. The absolute limit turned out to be 5.2 liters, and in that configuration, the V-12 powered the 15th Anniversary-Edition Countach.

Back in early 1986, work started on



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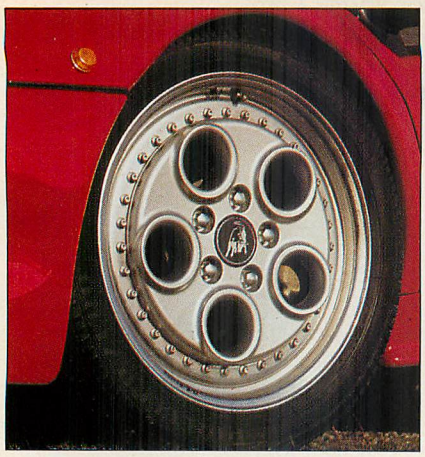


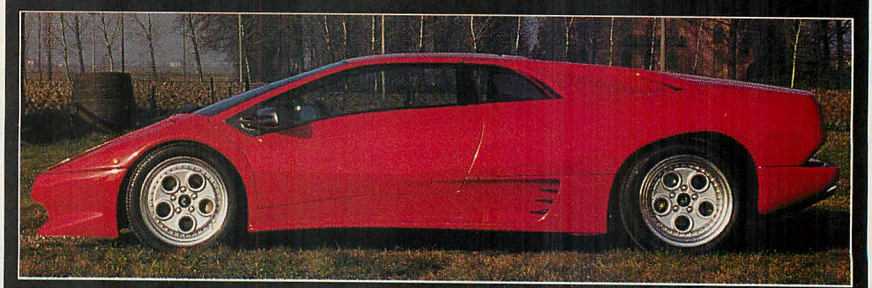
Lovely fitted luggage is available as an option. By the way, there's no spare tire; maybe the wealthy don't get flats.

the car that would be the Diablo. Luigi Marmiroli was enlisted to head development of the new car, at that point codenamed P132, and by the time Lamborghini was bought by Chrysler in early 1987, work was well underway. The financial resources the Chrysler deal brought would give the Lambo engineers a grander budget to match their grand ideas. Thus, when Marmiroli and crew were unsatisfied with the top speed of the early 5.2-liter-powered P132, Lambo had the freedom and resources to opt for an entirely new 5.7-liter engine.

Of similar design to the venerable Countach powerplant, this new mill has a proper bore-and-stroke ratio for its displacement and reflects the advances of the last quarter century in its architecture. The layout of the engine and drivetrain are similar to Countach practice, but all the pieces are new. The dual overhead camshafts are now spun by automatically adjusted single-row chains instead of the manually adjusted double-row chains used previously. The result is a reduction in weight, overall engine length, and maintenance requirements. And while the Countach had its various engine accessories hung all over the engine seemingly at random, the Diablo has the accessories incorporated into a single rear cover. Again, lighter and simpler. Other changes deep in the block improve strength and rigidity. A modern engine management system controls fuel delivery and spark timing, allowing far more precise engine control, and the elimination of the air pump used on the Countach. There will be just one version of the Diablo engine worldwide; it exhales through dual catalytic converters and meets U.S. emissions regulations. In fact, the whole car meets U.S. specs, so there won't be a situation where we receive slower cars with clunky add-on bumpers while the Europeans get the car in its pure form. The only notable difference will be the addition of a passive belt system for U.S. versions.

As before, the Diablo has the same unique powertrain layout that has perenially given Countach owners something to tell their dates about whenever the conversation lags. The V-12 sits longitudinally in the chassis right behind the passenger cabin, with the power fed forward through the single-plate dry clutch to the 5-speed manual transmission buried in the massive center console. From there, the power makes a U-turn, and a driveshaft runs back along the right side of the engine's sump to the differential, and on to the rear wheels. In the Countach, the driveshaft actually fits through a passageway in the sump; in the Diablo, the offset driveshaft mounting provides room for a single, stronger girdle-type

TECH DATA



Lamborghini Diablo

GENERAL

Make and model	Lamborghini Diablo
Manufacturer	Lamborghini Automobili SpA, Sant'Agata Bolognese, Italy
Body style	2-door, 2-passenger
Drivetrain layout	Mid-engine, rear drive
Base price	$170,000 (est.)
Typical market competition	Ferrari F40, Porsche 959

DIMENSIONS

Wheelbase, in./mm	104.3/2650
Track, f/r, in./mm	60.6/64.6 1540/1640
Length, in./mm	175.6/4460
Width, in./mm	80.3/2040
Height, in./mm	43.5/1105
Ground clearance, in./mm	5.5/140
Manufacturer's curb weight, lb	3616
Weight distribution, f/r, %	41/59
Cargo capacity, cu ft	5.0
Fuel capacity, gal	26.4
Power/weight ratio, lb/hp	7.5

ENGINE

Type	V-12, liquid cooled, cast alloy block and heads
Bore x stroke, in./mm	3.43 x 3.15/ 87.0 x 80.0
Displacement, ci/cc	348/5707
Compression ratio	10.0:1
Valve gear	DOHC, 4 valves/cylinder
Fuel/induction system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	485 @ 7000
Torque, lb/ft @ rpm, SAE net	428 @ 5200
Horsepower/liter	85.0
Recommended fuel	Unleaded premium

DRIVELINE

Transmission type	5-speed man.
Gear ratios	
(1st)	2.31:1
(2nd)	1.52:1
(3rd)	1.13:1
(4th)	0.89:1
(5th)	0.68:1
Axle ratio	2.41:1
Final drive ratio	2.59:1

CHASSIS

Suspension	
Front	Upper and lower control arms, coil springs, anti-roll bar
Rear	Upper and lower control arms, coil springs, anti-roll bar
Steering	
Type	Rack and pinion
Brakes	
Front, type/dia., in.	Vented discs/13.0
Rear, type/dia., in.	Vented discs/11.2
Wheels and tires	
Wheel size, f/r, in.	17 x 8.5/ 17 x 13.0
Wheel type/material	Cast alloy
Tire size, f/r	245/40ZR17/ 335/35ZR17
Tire mfr. and model	Pirelli P Zero

PERFORMANCE AND TEST DATA

Acceleration, sec*	
0-62 mph	4.0
0-1000 meters	20.8
Top speed, mph	202

*Manufacturer's estimates

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main-bearing cap.

The Diablo's drive layout will make the planned addition of awd technology for the '91 model year a relatively simple process. A viscous coupling will be positioned on the front of the gearbox in that car, feeding power through a carbon-fiber driveshaft to the front differential. Up to 15% of the engine's power will be directed to the front wheels to improve traction and, in turn, stability, under heavy throttle. An optional automatic clutch system is planned for the awd car, eliminating the clutch pedal, but still allowing the driver to row through the traditional gated shifter. A simple squeeze on the shifter will disengage the clutch for gear changes. The car will be capable of moving away from a stop in any of the first three gears, and the firmness of the shifts will be set by the driver via an adjustable ring on the shift lever.

As awesome as the Diablo's peak power is, there's more to the story. With the newfound horsepower comes 428 lb-ft of torque—the most of any production car, and the power is everywhere. By 2000 rpm, the Lambo is already making better than 200 lb-ft; the peak hits at 5200 rpm. The Diablo's power characteristics should make it a far more driveable machine than the Ferrari F40, which reaches its similar horsepower and torque figures with the help of a brace of turbos and intercoolers. We'll know for sure when we get a drive in the Diablo within the next few months.

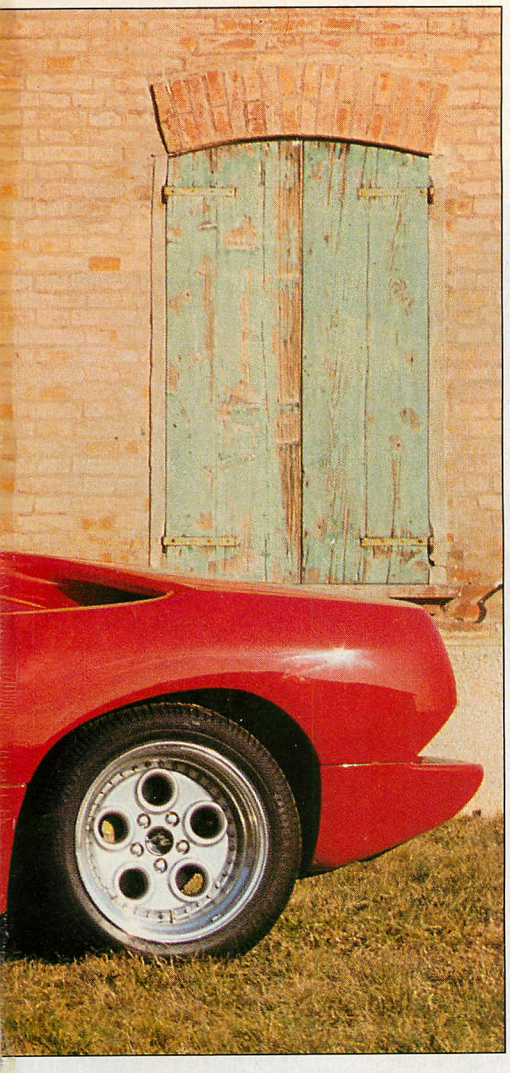
No drastic changes have been made to the Diablo's chassis layout, though

all the pieces are new. The proportions have been juggled, moving the cabin forward as in current Group C race cars. Overall, the Diablo is larger and heavier than the Countach; the wheelbase is 6 in. longer, width has grown 1.6 in., and height is 1.4 in. greater. At 3616 lb, the Diablo is about 300 lb heavier than the Countach. The added size accounts for most of that, of course, but another factor is the Diablo's standard-equipment level. There's automatic air conditioning for starters. Instead of the absurd little mail-slot side windows of the Countach, the Diablo has full-size windows with electric lifts. And the Alpine stereo system adds considerable mass—there's a subwoofer that alone weighs 26 lb. The marketing department at Lamborghini wanted the Diablo to provide full-on luxury, not the stark race-car-like feel of the rival Ferrari F40. Between these luxury touches and a larger, more commodious cabin, it would seem they've succeeded.

Additional measures were taken to boost the Diablo's comfort quotient. A half dozen spring and damper units

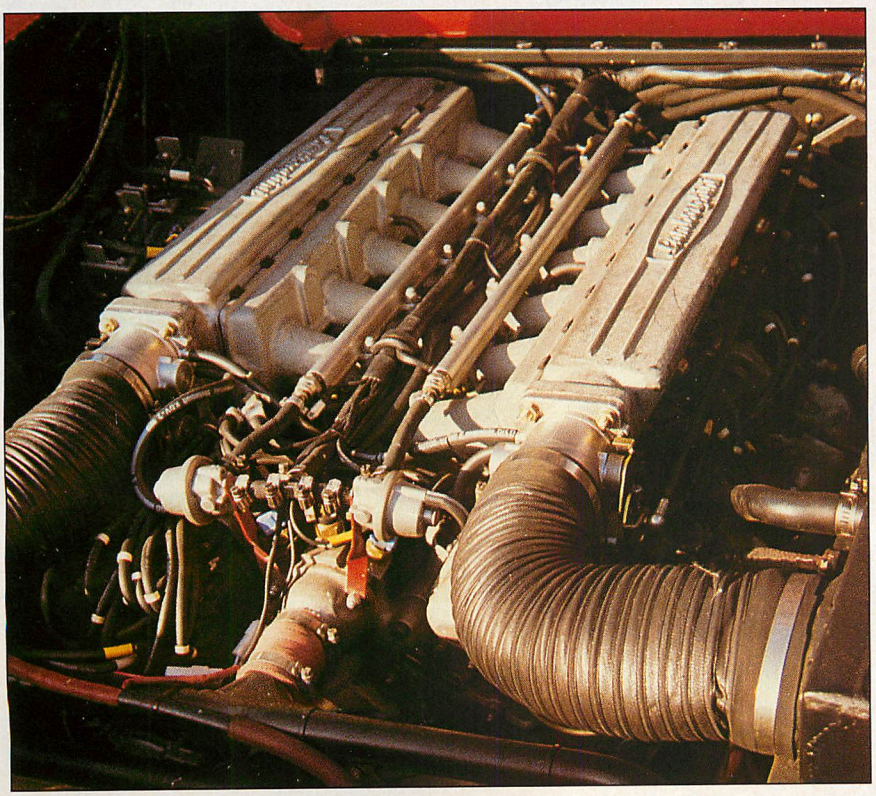
control the Lambo's wheels; the rates are fixed currently, but a system using adjustable dampers is in the works. Tires are the biggest ZR-rated Pirellis you can get; they're the same P Zeros as on the Ferrari F40. Braking is handled by enormous ventilated discs and, surprisingly, without the aid of ABS. The steering is of conventional rack-and-pinion design without any sort of assist. Given the size of the tires and the fact that some 1500 lb (41%) of the car's weight is carried by the front wheels, it's a cinch that low-speed maneuvering is going to be a devilish chore in the Diablo.

To tie all these wonderful bits together, Lamborghini has gone with a much tidier interpretation of the Countach's old welded steel spaceframe. The Countach's tangle of round section tubing has given way to square- and rectangular-section ma-



terial that more closely follows the load paths through the chassis. Composite panels are used in the cabin floor for added rigidity, and the roof is constructed of steel. The doors and quarter panels are now made of a tougher alloy than the soft aluminum versions that kept Countach owners in a constant state of anxiety. A thin carbon fiber composite is used in the construction of the bumpers, engine cover, and trunklid; it's substantially lighter than even aluminum, and more damage tolerant.

The material is far less important than the shape, and in this respect, the Diablo excels. Unlike the overtly angular Countach, the Diablo has a current, more rounded look. The proportions echo the Countach, but in no way mimic the predecessor. The basic lines of the Diablo were penned by Marcello Gandini, the same man who conjured up both the Miura and the Countach. His original Diablo design was more angular than the one you see here, however. After Chrysler acquired Lamborghini in '87, a restyling of the Diablo was ordered, and Gandini came back with a new version. Chrysler and Lamborghini executives still weren't completely satisfied, so Chrysler's U.S. styling department was put on the case. The result is a softer, more organic shape than Gandini preferred. He, in fact, used his early Diablo ideas as a launching point for another separate project, the Cizeta Moroder V16-T.



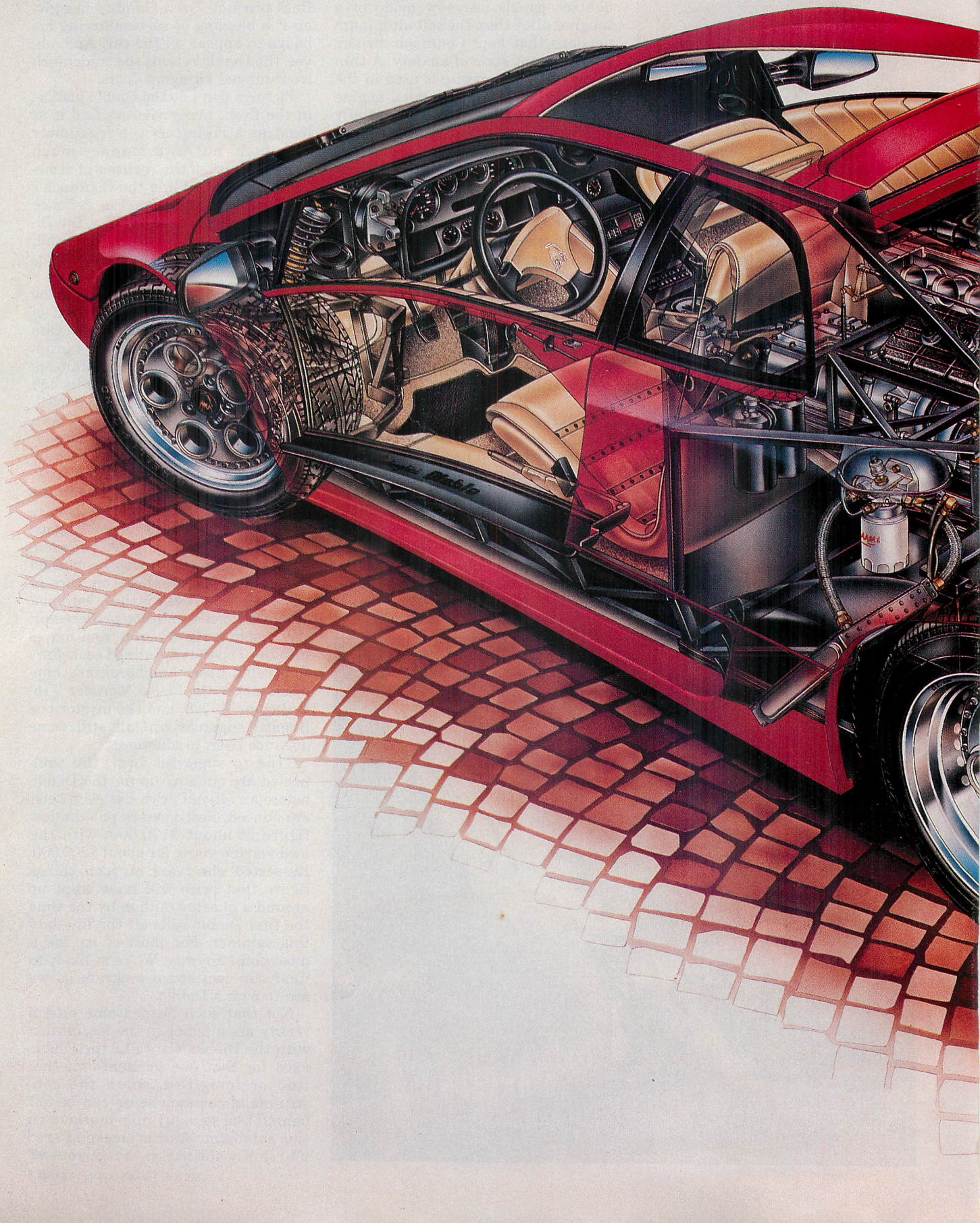
The Diablo's interior design was also handled by Chrysler stylists. Whatever the convoluted history of the design, Lamborghini and Chrysler alike seem quite satisfied with the final product. Even Gandini has given it a blessing of sorts, allowing his badge to appear on the car. And, oh, yes, the Diablo retains the trademark front-hinged swing-up doors.

Pictures don't do the Diablo justice; in the flesh, many viewers find it at least as striking as the legendary Countach, but in a manner much more mindful of the realities of atmospheric travel. While the Countach's bold swipes were penned in defiance of the tenets of aerodynamics, the Diablo's shape works with the wind, while it pleases the eye. The result is moving.

Functionally, the Diablo's new shape is leagues better than that of the Countach—a design that, in spite of its charms, is as draggy as a grappling hook. The Countach's infamous 0.41 Cd meant that even with its 455 hp, aerodynamic drag erected a brick wall at about the 180-mph mark. As a measure of the Countach's aerodynamic badness, consider that the radical ZR-1 Corvette, a car with 80 fewer horsepower can reach about the same velocity. The Diablo, on the other hand, enjoys a remarkably good 0.30 Cd, no small feat given the monstrous rubber that must be pushed through the atmosphere on cars of this class. The result is that, with just 30 more horses than its predecessor, the Diablo gains 22 mph, and moves into the Top-Speed Catbird seat. Cars that could upset Lamborghini's happy situation, the Cizeta Moroder V16-T, Jaguar XJ220, and the mysterious Bugatti supercar are all still some distance from production.

True to supercar form, the well-heeled are queuing up for the Diablo before an official price has even been announced. Best guesses put the low figure at about $170,000, with the awd version going for about $200,000. Respected observers of such things figure that price will have crept up around a quarter million by the time the first Diablo rolls off the line late this summer. For most of us, it's a moot point anyway. We're as likely to fund our own space program as we are to own a Diablo.

Not that such burdensome bits of reality are a factor in the fascination with the Diablo. Cars like the Diablo exist for that one moment, whether real or imagined, when the constraints of common sense can be left behind like so many mile-markers on the autobahn. And a bug-splattered F40 slowly shrinks in the mirrors. MT



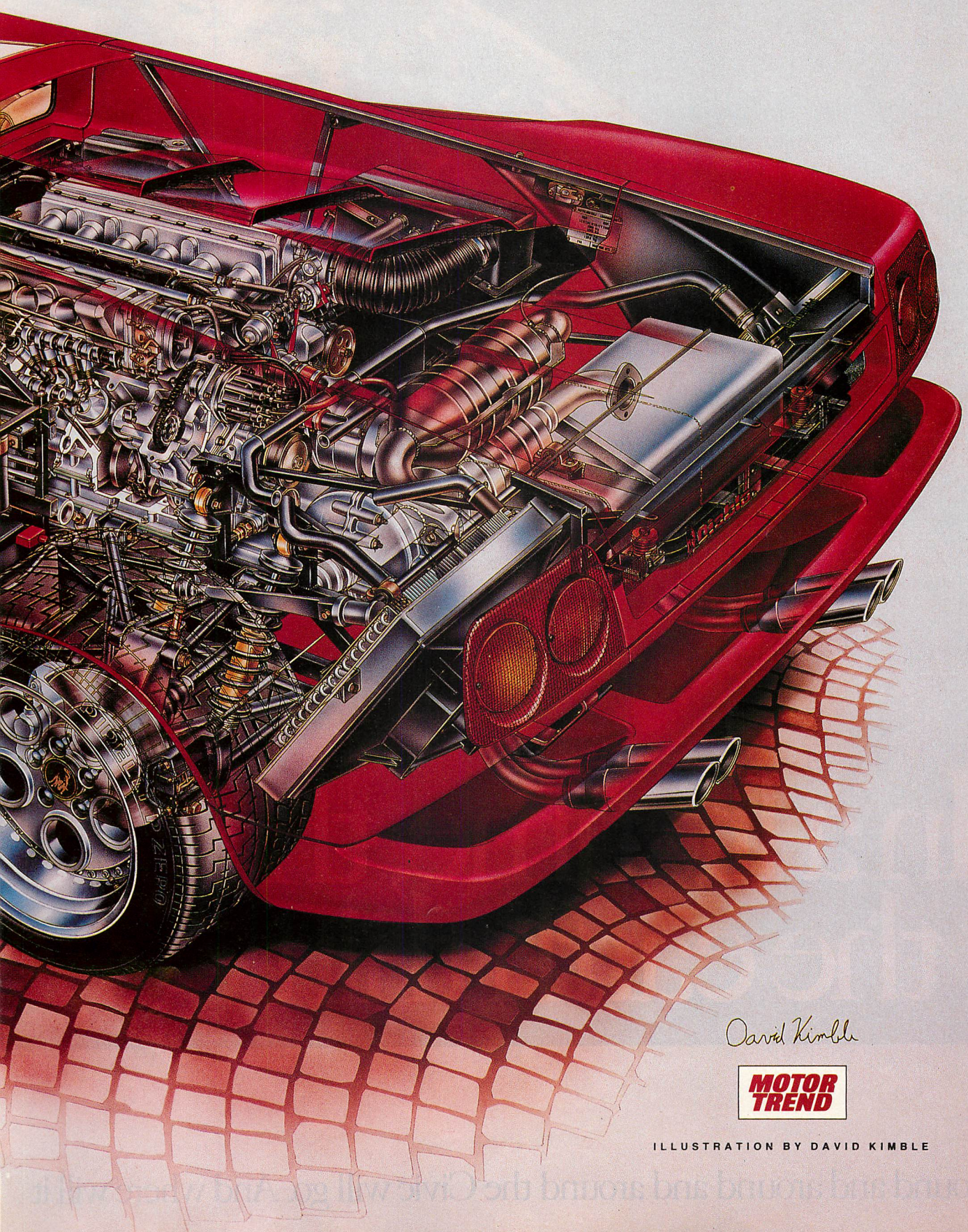


ILLUSTRATION BY DAVID KIMBLE

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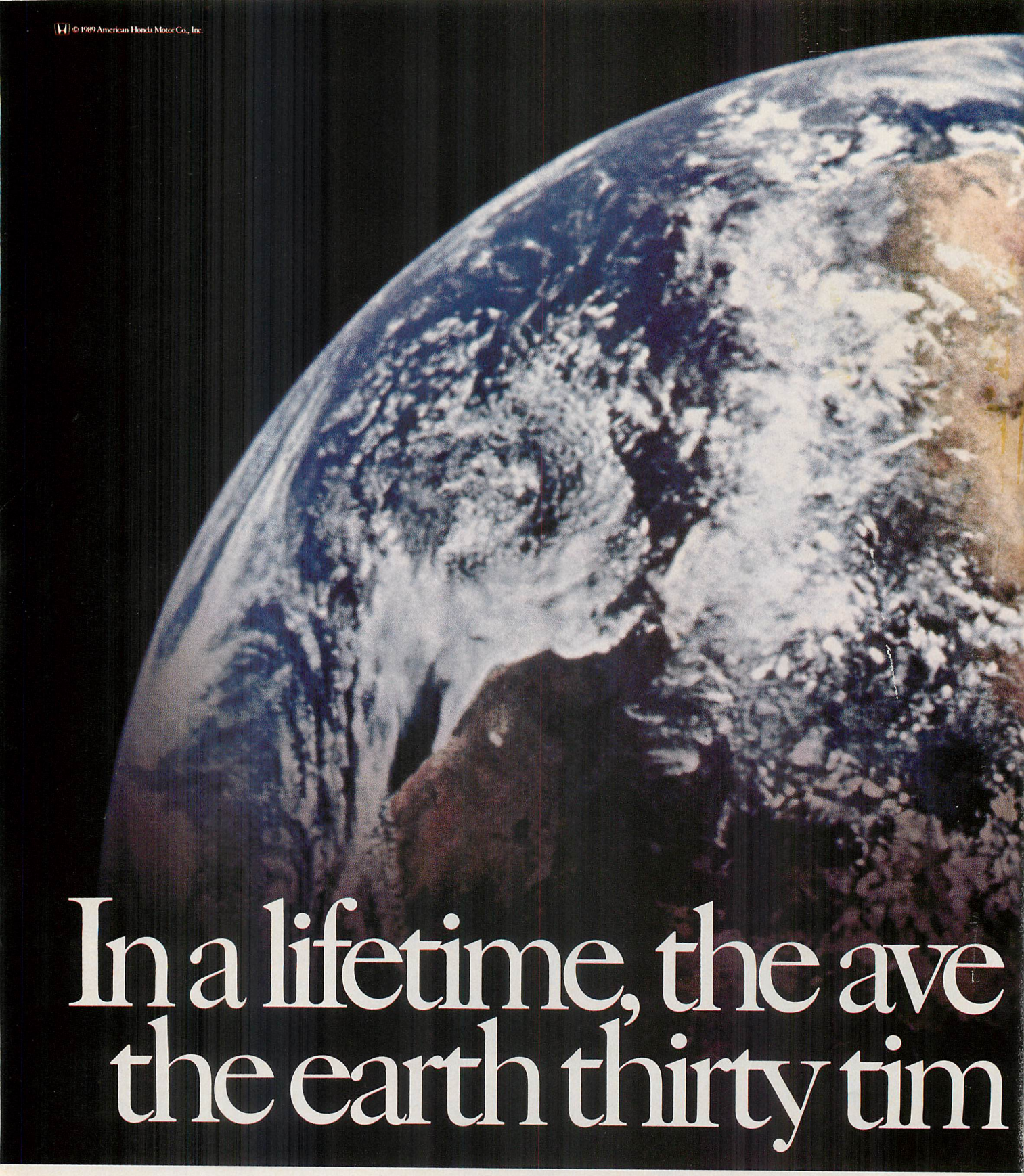
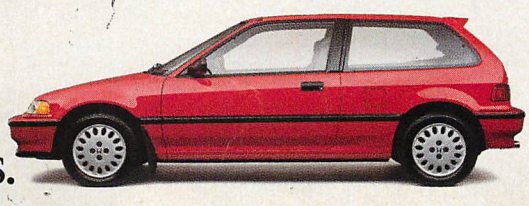


In a lifetime, the ave the earth thirty tim

Around and around and around the Civic will go. And where will it

rage driver will circle es. It could be fun.



stop? Nobody knows. The Civic Si. HONDA

ROAD TEST

CHEVROLET LUMINA EURO SEDAN vs. FORD TAURUS LX vs. EAGLE PREMIER ES LIMITED

A FAMILY-RATED MENAGE A TROIS

by Jim Miller

PHOTOGRAPHY BY CHARLIE RATHBUN

You know something's happening when you start looking wistfully at your brother's six-year-old K-car. Or you begin wishing for more trunk space in the Mustang. Or your wife complains about putting baby seats in the Camaro. Suddenly, spouses and offspring rank as major considerations in your automotive tastes, and trunk space and four doors become as important in your buying decision as horsepower and lateral acceleration. It's the car-enthusiast's equivalent to the change of life.

Fortunately, it doesn't have to mean the end of life as you know it. Over the past several years, Detroit has introduced a number of interesting, family-oriented alternatives, so a life of familial responsibility doesn't have to be as bleak as it once seemed. As proof, we've gathered three of the best examples of mid-size, mid-priced (yes, $20,000 now qualifies) sedans that should at least make the transition to the world of the 4-door a bit less painful.

Introduced in 1985 (as an '86 model), Ford's Taurus LX now represents the established standard in the class. Its trend-setting combination of room, power, and handling quickly made it the benchmark for American sedans, as well as *Motor Trend's* 1986 Car of the Year. The intervening five years have given GM and Chrysler ample time to cut Ford's lead, but the Taurus remains one of the toughest suburban guerrillas.

The Chrysler folks from Highland Park plucked their entry from the remains of Franco-American Motors, and the Renault-designed Eagle Premier ES Limited offers something of a French translation of a large sedan. And its Continental interpretation presents some up-front advantages. Despite having the same general size and a nearly identical wheelbase as the other two contestants, the Premier's interior surrounds enough open space to qualify it as a Large Car with the EPA, while the Chevrolet and the Ford are considered

Mid-Size.

The third member of our 4-door follies is also the newest. Chevy's Lumina Euro Sedan has yet to celebrate its first birthday. Still, the original GM-10 from which it sprang (in Pontiac Grand Prix guise) was a Car of the Year winner, and its 2-door brother finished 2nd in this year's COY polling. With additional time to study the market, Chevy's had plenty of opportunity to get it right.

In one very real sense, these can all be considered variations on a theme. Not only do they share a common mission, but their interpretations are surprisingly similar. As tested, each member of the group seats five, with a center console and floor-mounted shifter occupying the center front position. In addition, each is a complete departure from the old Detroit standard front-engine/rear-drive V-8-powered family sedan.

All three are powered by a V-6 engine. The smallest of the three, the Premier's SOHC 3-liter V-6 boasts the most horsepower—150—but the lowest torque—171 lb-ft. The 3.8-liter Ford is nearly the opposite, with 140 hp but a whopping 215 lb-ft of torque. Chevy's 3.1-liter is the lowest in horsepower with 135 and offers a middling 180 lb-ft of torque. In every case, a 4-speed overdrive automatic transfers the power to the front wheels.

The similarities extend to the chassis, as well. Disc brakes abound. The Taurus stands out as the only one in our test group equipped with anti-lock (though it's optional on the Lumina). All sport 4-wheel independent suspensions, with MacPherson struts in front. At the rear, both the U.S.-designed offerings feature a strut-type suspension, while the Premier uses a twist-beam with trailing arms. Rear springing differs in every case; the Ford checks in with coils, the Eagle with torsion bars, and the Chevrolet with a plastic transverse leaf.

And if you're looking at objective performance, these three swap advantages like first-graders swap marbles. Kudos for quarter-mile and 0-

TECH DATA

Chevrolet Lumina Euro

GENERAL

Make and model.....Chevrolet Lumina Euro
Manufacturer.....Chevrolet Motor div., General Motors Corp., Warren, Mich.
Body style.....4-door, 5-passenger
Drivetrain layout.....Front engine, front drive
Base price.....$14,240
Price as tested.....$16,800
Options included.....Preferred equipment group 2 (includes numerous comfort and convenience items), $1205; custom seats w/console, $299; alloy wheels, $250; 4-sp. auto trans, $200 215/60R16 tires, $76; rear defog, $160; power steering, $270; California emissions, $100
Typical market competition.....Eagle Premier, Ford Taurus, Buick Regal

DIMENSIONS

Wheelbase, in./mm.....107.5/2730
Track, f/r, in./mm.....59.5/58.0/1512/1472
Length, in./mm.....197.6/5020
Width, in./mm.....71.0/1803
Height, in./mm.....53.6/1361
Ground clearance, in./mm.....5.9/149
Manufacturer's curb weight, lb.....3297
Weight distribution, f/r, %.....64/36
Cargo capacity, cu ft.....15.7
Fuel capacity, gal.....17.1
Power/weight ratio, lb/hp.....24.4

ENGINE

Type.....60° V-6, liquid cooled, cast iron block, cast alloy heads
Bore x stroke, in./mm.....3.50 x 3.31/89.0 x 84.0
Displacement, ci/cc.....191/3135

TECH DATA

Eagle Premier ES Limited

GENERAL

Make and model.....Eagle Premier ES Ltd.
Manufacturer.....Chrysler Motors Corp., Detroit, Mich.
Body style.....4-door, 5-passenger
Drivetrain layout.....Front engine, front drive
Base price.....$20,272
Price as tested.....$20,375
Options included.....California emissions, $103
Typical market competition.....Ford Taurus, Chevrolet Lumina, Pontiac Grand Prix

DIMENSIONS

Wheelbase, in./mm.....106.0/2693
Track, f/r, in./mm.....58.1/57.1/1477/1450
Length, in./mm.....192.8/4897
Width, in./mm.....70.0/1778
Height, in./mm.....54.7/1389
Ground clearance, in./mm.....5.0/126
Manufacturer's curb weight, lb.....3121
Weight distribution, f/r, %.....62/38
Cargo capacity, cu ft.....17.0
Fuel capacity, gal.....17.0
Power/weight ratio, lb/hp.....20.8

ENGINE

Type.....90° V-6, liquid cooled, cast alloy block and heads
Bore x stroke, in./mm.....3.66 x 2.87/93.0 x 73.0
Displacement, ci/cc.....182/2975
Compression ratio.....9.3:1

TECH DATA

Ford Taurus LX

GENERAL

Make and model.....Ford Taurus LX
Manufacturer.....Ford Motor Co., Dearborn, Mich.
Body style.....4-door, 5-passenger
Drivetrain layout.....Front engine, front drive
Base price.....$16,180
Price as tested.....$20,764
Options included.....Preferred equip pkg (includes numerous performance, comfort, convenience, and cosmetic options), $4017; Ford JBL audio system, $488; audio digital CD, $491; California emissions, $100; clearcoat, $188; special discount, -$700
Typical market competition.....Chevrolet Lumina, Eagle Premier, Mercury Sable

DIMENSIONS

Wheelbase, in./mm.....106.0/2693
Track, f/r, in./mm.....61.6/60.5/1565/1537
Length, in./mm.....188.4/4786
Width, in./mm.....70.8/1798
Height, in./mm.....54.1/1374
Ground clearance, in./mm.....5.5/139.2
Manufacturer's curb weight, lb.....3284
Weight distribution, f/r, %.....65/35
Cargo capacity, cu ft.....17.0
Fuel capacity, gal.....16.0
Power/weight ratio, lb/hp.....23.5

ENGINE

Type.....90° V-6, liquid cooled, cast iron block, cast alloy heads
Bore x stroke, in./mm.....3.81 x 3.39/96.8 x 86.0

Compression ratio 8.8:1
Valve gear ..... OHV, 2 valves/cylinder
Fuel/induction system ..... Multipoint EFI
Horsepower, hp @ rpm, SAE net ..... 135 @ 4400
Torque, lb/ft @ rpm, SAE net ..... 180 @ 3600
Horsepower/liter 43.1
Redline, rpm 6000
Recommended fuel ..... Unleaded regular

DRIVELINE

Transmission type ..... 4-speed auto.
Gear ratios
(1st) 2.92:1
(2nd) 1.56:1
(3rd) 1.00:1
(4th) 0.70:1
Axle ratio 3.33:1
Final drive ratio 2.33:1
Engine rpm, 60 mph in top gear 1850

CHASSIS

Suspension
Front ..... MacPherson struts, lower control arms, coil springs, anti-roll bar
Rear ..... Struts, lower control links, transverse leaf spring, anti-roll bar
Steering
Type ..... Rack and pinion, power assist
Ratio 17.6:1
Turns, lock to lock 2.9
Turning circle, ft 39.0
Brakes
Front, type/dia., in. ..... Vented discs/10.5
Rear, type/dia., in. Discs/10.1
Anti-lock ..... Optional
Wheels and tires
Wheel size, in. ..... 16 x 6.5
Wheel type/material ..... Cast alloy
Tire size 215/60R16
Tire mfr. and model ..... Goodyear Eagle GA

INSTRUMENTATION

Instruments ..... 115-mph speedo; 8000-rpm tach; oil pressure; coolant temp; fuel level; digital clock
Warning lamps ..... Oil; low coolant; battery; temp; service engine

PERFORMANCE AND TEST DATA

Acceleration, sec
0-30 mph 3.1
0-40 mph 4.8
0-50 mph 7.1
0-60 mph 9.9
0-70 mph 13.2
Standing quarter mile, sec @ mph ..... 17.3 @ 79.4
Braking, ft
30-0 mph 32
60-0 mph 139
Handling
Lateral acceleration, g 0.78
Speed through 600-ft slalom, mph 61.4
Speedometer error, mph

Indicated	Actual
30	32
40	43
50	52
60	62

Interior noise, dBA
Idling in neutral 55
Steady 60 mph in top gear 68

FUEL ECONOMY

EPA, city/hwy., mpg 19/30
Est. range, city/hwy., miles 325/513

Valve gear ..... SOHC, 2 valves/cylinder
Fuel/induction system ..... Multipoint EFI
Horsepower, hp @ rpm, SAE net ..... 150 @ 5000
Torque, lb/ft @ rpm, SAE net ..... 171 @ 3600
Horsepower/liter 50.4
Redline, rpm 5500
Recommended fuel ..... Unleaded regular

DRIVELINE

Transmission type ..... 4-speed auto.
Gear ratios
(1st) 2.58:1
(2nd) 1.41:1
(3rd) 1.00:1
(4th) 0.74:1
Axle ratio 2.69:1
Final drive ratio 2.66:1
Engine rpm, 60 mph in top gear 2350

CHASSIS

Suspension
Front ..... MacPherson struts, lower control arms, coil springs, anti-roll bar
Rear ..... Trailing arms, twist beam torsion bars
Steering
Type ..... Rack and pinion, power assist
Ratio 17.3:1
Turns, lock to lock 3.1
Turning circle, ft 35.9
Brakes
Front, type/dia., in. ..... Vented discs/10.4
Rear, type/dia., in. Discs/10.0
Anti-lock ..... Not offered
Wheels and tires
Wheel size, in. ..... 15 x 6.0
Wheel type/material ..... Cast alloy
Tire size 205/60HR15
Tire mfr. and model ..... Goodyear Eagle GT+4

INSTRUMENTATION

Instruments ..... 100-mph speedo; 7000-rpm tach; oil press; fuel level; coolant temp; digital clock
Warning lamps ..... Oil; battery; door ajar; belts

PERFORMANCE AND TEST DATA

Acceleration, sec
0-30 mph 3.7
0-40 mph 5.4
0-50 mph 8.0
0-60 mph 10.6
0-70 mph 13.8
Standing quarter mile, sec @ mph ..... 17.8 @ 80.3
Braking, ft
30-0 mph 31
60-0 mph 126
Handling
Lateral acceleration, g 0.81
Speed through 600-ft slalom, mph 60.3
Speedometer error, mph

Indicated	Actual
30	29
40	40
50	50
60	58

Interior noise, dBA
Idling in neutral 50
Steady 60 mph in top gear 67

FUEL ECONOMY

EPA, city/hwy., mpg 17/26
Est. range, city/hwy., miles 289/442

Displacement, ci/cc 232/3797
Compression ratio 9.0:1
Valve gear ..... OHV, 2 valves/cylinder
Fuel/induction system ..... Multipoint EFI
Horsepower, hp @ rpm, SAE net ..... 140 @ 3800
Torque, lb/ft @ rpm, SAE net ..... 215 @ 2200
Horsepower/liter 36.9
Redline, rpm 5500
Recommended fuel ..... Unleaded regular

DRIVELINE

Transmission type ..... 4-speed auto.
Gear ratios
(1st) 2.77:1
(2nd) 1.54:1
(3rd) 1.00:1
(4th) 0.69:1
Axle ratio 3.47:1
Final drive ratio 2.20:1
Engine rpm, 60 mph in top gear 1750

CHASSIS

Suspension
Front ..... MacPherson struts, lower control arms, coil springs, anti-roll bar
Rear ..... Struts, trailing and lateral links, coil springs, anti-roll bar
Steering
Type ..... Rack and pinion, power assist
Ratio 15.2:1
Turns, lock to lock 2.5
Turning circle, ft 38.1
Brakes
Front, type/dia., in. ..... Vented discs/10.0
Rear, type/dia., in. ..... Vented discs/10.0
Anti-lock ..... Optional
Wheels and tires
Wheel size, in. ..... 15 x 6.0
Wheel type/material ..... Cast alloy
Tire size 205/65R15
Tire mfr. and model ..... Michelin XW4

INSTRUMENTATION

Instruments ..... Digital speedo; digital tach; fuel level; coolant temp; digital clock
Warning lamps ..... Battery; oil; check engine; anti-lock; airbag; brake; door ajar

PERFORMANCE AND TEST DATA

Acceleration, sec
0-30 mph 3.3
0-40 mph 5.0
0-50 mph 7.4
0-60 mph 10.0
0-70 mph 13.3
Standing quarter mile, sec @ mph ..... 17.4 @ 80.0
Braking, ft
30-0 mph 32
60-0 mph 143
Handling
Lateral acceleration, g 0.79
Speed through 600-ft slalom, mph 61.2
Speedometer error, mph

Indicated	Actual
30	30
40	41
50	51
60	62

Interior noise, dBA
Idling in neutral 48
Steady 60 mph in top gear 67

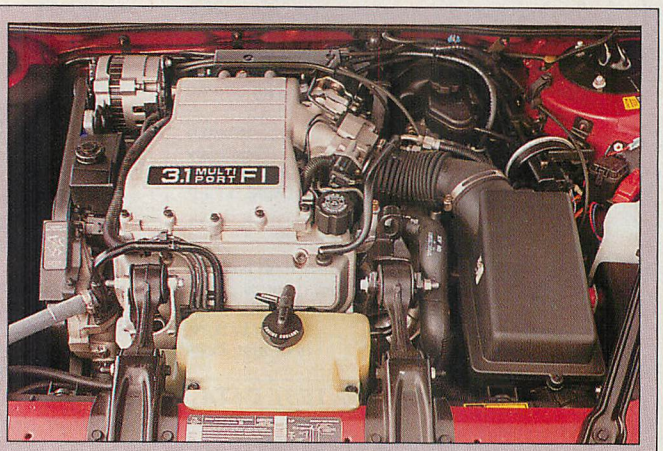
FUEL ECONOMY

EPA, city/hwy., mpg 19/28
Est. range, city/hwy., miles 304/448

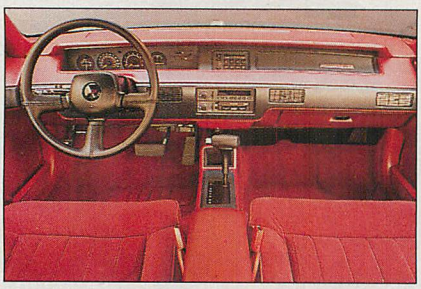
60 times fall to the Lumina, with a 9.9-sec short sprint and a 17.3-sec/79.4-mph quarter. That puts it only 0.1 sec ahead of the Taurus in both races. The Premier doesn't capitalize on its high-rpm horsepower advantage at the track, as it falls 0.78 sec behind the Chevy in the 60-mph dash and 0.5 sec through the quarter mile.

The Premier regains a bit of its composure during the other tests. Its 126-ft 60-0 stop outshines either of its family sedan rivals. The Lumina managed a 139-ft figure, while the Ford, despite its ABS, came in at 143 ft. They're nearly interchangeable on the skidpad. The Premier again came through with a credible 0.81 g, but the others never cracked the 0.80g barrier; the Taurus managed 0.79 and the Lumina fell behind at 0.78. All three skittered through the slalom within about 1 mph of one another; the Chevy at 61.4 mph, the Ford at 61.2, and the Eagle at 60.3. If you're looking for a clear winner, you won't find it at the test track.

But objective testing doesn't mean that much in this class. After all, pasting the kids against the door panels through an on-ramp won't do much for domestic tranquility. Instead, maintaining your own piece of mind takes precedence, and each of these offers different advantages for doing so, depending on what you're after.



KUDOS GO TO THE LUMINA FOR THE BEST ACCELERATION TIMES



If you're still seduced by a coiled bit of two-lane, despite the shift to four doors, Chevrolet's Euro Sedan holds a slim lead over the other two. Chassis balance is one area in which GM has taken full advantage of the additional design time. The Lumina's pin-sharp steering response and quick turn-in seem to strip several hundred pounds off its 3297-lb curb weight, making it feel like the lightest of the bunch in terms of agility. In addition, the independent suspension keeps close tabs on wheel movement, so lumpy pavement has little effect on the Lumina's fast footwork.

Close behind the Chevy, the Taurus makes it plain why it's been such a solid performer for the past few years. Ford added speed-sensitive variable-assist power steering to the LX for 1990, and it matches the best Japanese or German designs. It also equals Chevy's in terms of feedback, while easing low-speed maneuvers even more. Suspension response is a tick behind GM's; it's just a bit soft for serious back-road work.

The Premier goes one step further than the Taurus. In keeping with its French roots, the Eagle possesses yards of suspension travel, controlled by cotton-soft springs and matching

After Rigorous Testing, The Competition Put Our New Firestone All-Season Performance Radial In Its Place.

First.

To show you how our new H-speed rated Firestone Firehawk GTX® all-season performance radial performs, Firestone engineers put it to the toughest test they could. In direct competition against the H-rated Goodyear Eagle GT+4, BFGoodrich Comp T/A HR, and General XP 2000 AS HR.

And our Firehawk GTX beat them overall in combined scoring for dry and wet performance, rolling resistance, tire mileage, and ride quiet. Ten tests in all, and in each of those ten categories, applying the rule of statistical significance, the Firehawk GTX was either first or tied for first. And first in total index score with an impressive 993.6 points out of a possible 1,000.

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Wet Roadholding

		Index
GTX	0.629 g's	100.0
GT + 4	0.628 g's	99.8
XP 2000 AS HR	0.598 g's	95.1
COMP T/A HR	0.577 g's	91.7

Lateral g's, 220' Concrete Circle, .05" Water
Confidence Window: 0.011 g's**

Wet Braking

		Index
COMP T/A HR	101.4 ft.	100.0
GTX	103.0 ft.	98.5
GT + 4	104.8 ft.	96.8
XP 2000 AS HR	106.8 ft.	94.9

40-0 MPH on Wet Concrete
Confidence Window: 4.1 ft.**

Dry Roadholding

		Index
GT + 4	0.868 g's	100.0
GTX	0.859 g's	97.9
COMP T/A HR	0.847 g's	97.6
XP 2000 AS HR	0.845 g's	97.4

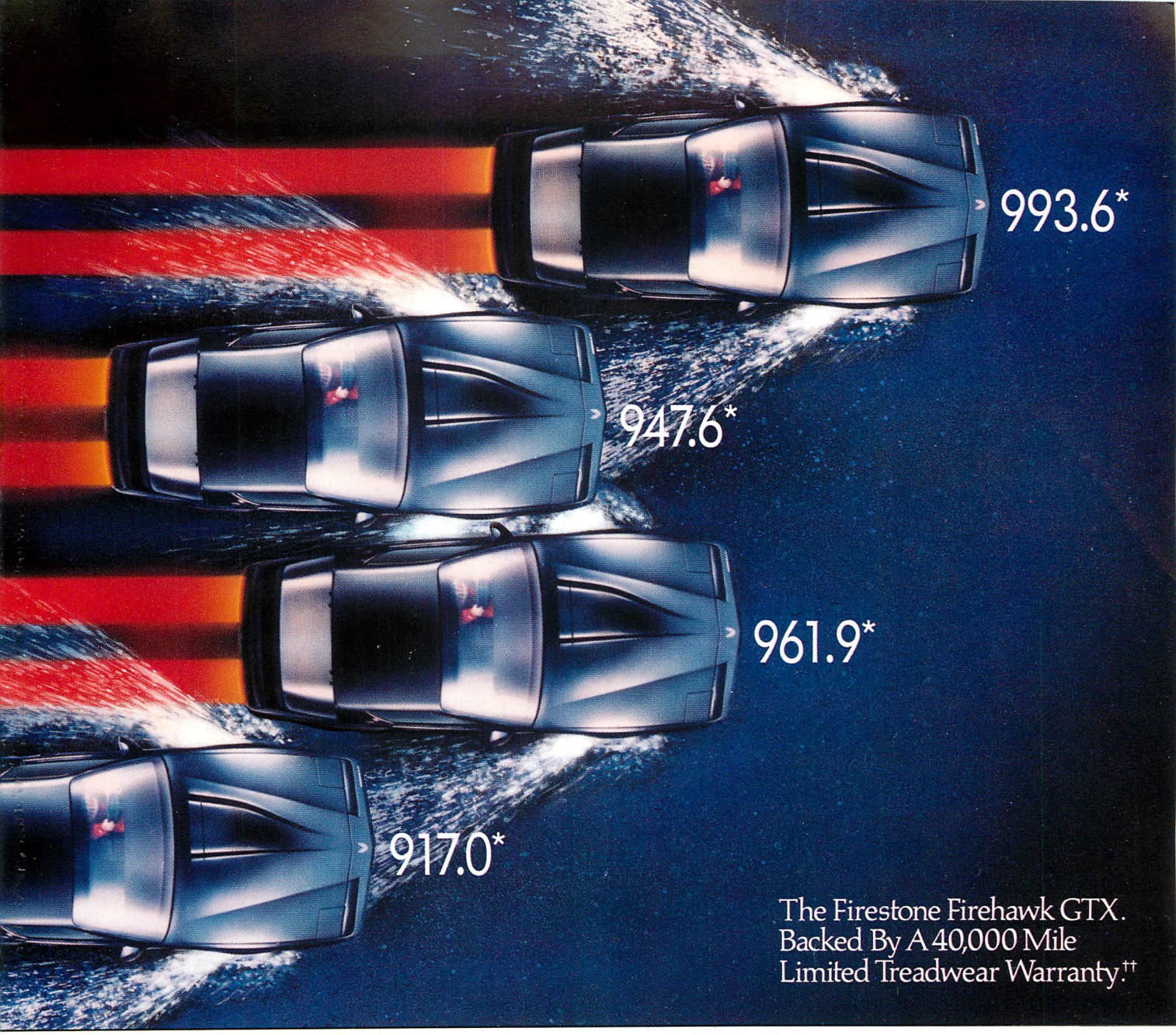
Lateral g's, 250' Asphalt Circle
Confidence Window: 0.011 g's**

Dry Braking

		Index
GT + 4	170.2 ft.	100.0
COMP T/A HR	173.6 ft.	98.0
XP 2000 AS HR	174.2 ft.	97.7
GTX	174.9 ft.	97.3

60-0 MPH on Asphalt
Confidence Window: 4.9 ft.**

*Total score based on indexing top raw score in each test to 100 with remaining scores ranked proportionally. Tests conducted in 1989 with P215/65R15 tires. For test details, write Firehawk GTX Test Results, 1200 Firestone Parkway, Akron, OH 44317. (In Canada: 120 King St. W., Hamilton, Ont. L8N 4C6.) **Confidence windows indicate statistically insignificant differences. †Eagle GT+4,® Comp T/A,® and



Wet Maneuverability

		Index
GTX	51.403 mph	100.0
COMP T/A HR	51.371 mph	99.9
GT + 4	50.328 mph	97.9
XP 2000 AS HR	49.158 mph	95.7

700' Slalom, Pylons 100' Apart, .05" Water — Confidence Window: 0.920 mph**

Road Course

		Index
GTX	67.483 mph	100.0
COMP T/A HR	67.276 mph	99.7
GT + 4	66.843 mph	99.1
XP 2000 AS HR	66.117 mph	98.0

1.125 Mile Course — Confidence Window: 0.460 mph**

Ride Quiet

		Index
GTX	81.1 dB	100.0
COMP T/A HR	82.4 dB	85.6
GT + 4	83.5 dB	75.4
XP 2000 AS HR	83.9 dB	72.4

Average New and Worn Tread/ Semi-Anechoic Chamber Testing, 35 MPH — Confidence Window: NA

Dry Maneuverability

		Index
GT + 4	60.523 mph	100.0
GTX	60.480 mph	99.9
COMP T/A HR	59.617 mph	98.5
XP 2000 AS HR	58.735 mph	97.1

800' Slalom, Pylons 100' Apart — Confidence Window: 0.790 mph**

Tire Mileage

		Index
GTX	41,040 mi.	100.0
COMP T/A HR	40,202 mi.	98.0
GT + 4	38,531 mi.	93.9
XP 2000 AS HR	38,423 mi.	93.6

Projected from 20,000 Over-the-Road Miles — Confidence Window: NA

Rolling Resistance

		Index
GTX	11.30 lbs.	100.0
COMP T/A HR	12.17 lbs.	92.9
GT + 4	13.34 lbs.	84.7
XP 2000 AS HR	15.04 lbs.	75.1

Indoor Test Drum — Confidence Window: 0.30 lbs.**

XP 2000 AS® are registered trademarks of The Goodyear Tire & Rubber Co., The Uniroyal Goodrich Tire Co., and General Tire, Inc. respectively. ††Your tires may or may not reach warranted mileage. If not, your Firestone retailer will replace them on a pro-rated basis according to warranty terms. See your retailer for full details.

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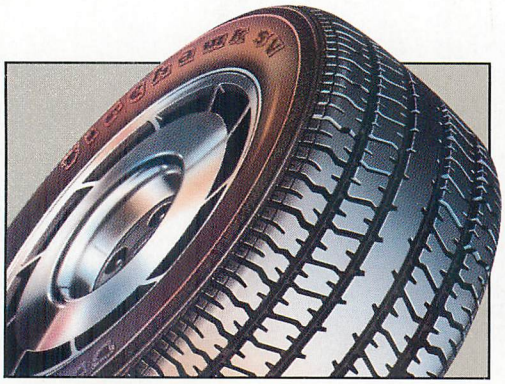
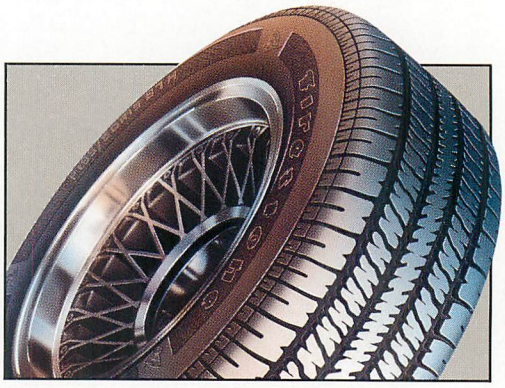
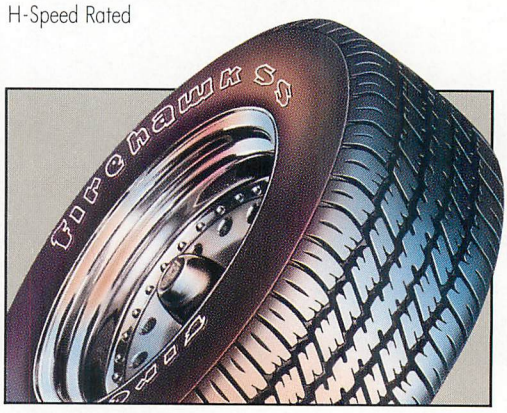


FIREHAWK SV®
V-Speed Rated



FIREHAWK GTX®
H-Speed Rated

FIREHAWK 660®
H-Speed Rated, Some Sizes V-Speed Rated



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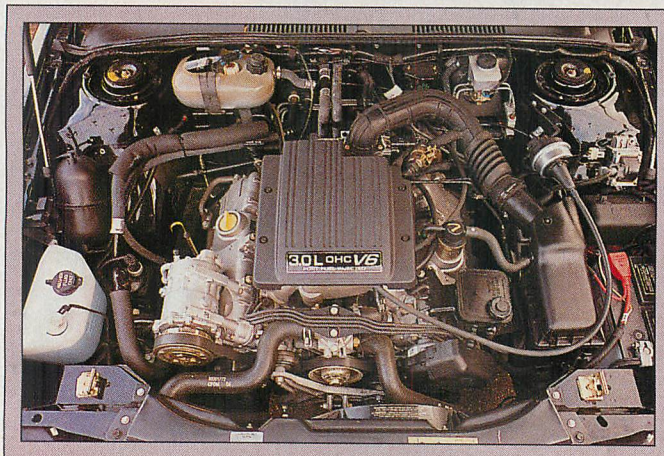
"The Automotive Accessory People"

dampers. While this might sound more like a classic Detroit compromise, the ES surprises with some exceptionally sure-footed moves of its own. Only a numb, over-assisted power-steering system erodes driver confidence in the French-designed chassis.

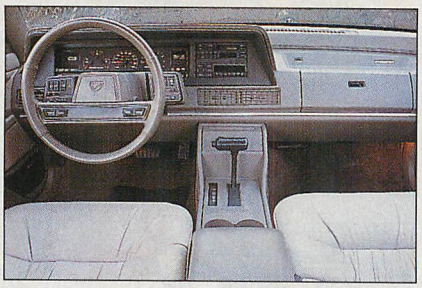
As you might expect, when it comes to comfort, the situation neatly reverses itself. The Premier quashes most pavement disturbances like a baby-sitter at a pillow fight. Despite its all-American heritage, the Taurus acts distinctly Teutonic; the ride has a firm, well-snubbed feel without jostling its passengers. On the other hand, the Chevy seems slightly short on wheel travel, and what it has occasionally feels decidedly rude over sharp-edged bumps.

In-town driving also brings out the real differences in powertrains. Although it looked only slightly off pace at the strip, the Eagle is the only member of the trio to feel underpowered around town. Moreover, the 4-speed auto surges annoyingly in stop and go, and the OHC Peugeot/Renault/Volvo V-6 delivers a symphony of odd noises.

Chevy's smoke-and-mirrors department made good use of the 3.1-liter V-6's limited horsepower. The Euro's gearing is nearly perfect for stoplight acceleration. Still, the transmission does a lot of shifting in cross-town traffic, and during acceleration, a lack of noise insulation makes the Lumina sound like every one of the its 135 horses is stabled right in the passenger compartment.



THE PREMIER SURPRISES WITH SOME SURE-FOOTED MOVES OF ITS OWN



In the Ford's case, dealing with the urban sprawl brings out its displacement advantage, and the 215 lb-ft of torque that comes with it. The Taurus jumps from rest as quickly as the Chevy, yet manages the snap-decision lane changes without a downshift. Furthermore, almost no sound trickles through the firewall or glass.

In fact, overall, there's not much inside the Ford that's going to disturb its passengers with an exception or two. Our test car came with digital gauges that we certainly could have done without, as well as the requisite strip of plastic wood creeping across the door panels and dash. Both of these seem anachronistic in a car that otherwise remains a model of modern design. Everything else within the cabin is nicely done. Well-pronounced convex and concave buttons denote the on/off, up/down switch functions. A double set of visors simultaneously cover both the windshield and side glass. Most important, all the major functions—stereo, cruise control, lights, wipers, heating/ventilation/

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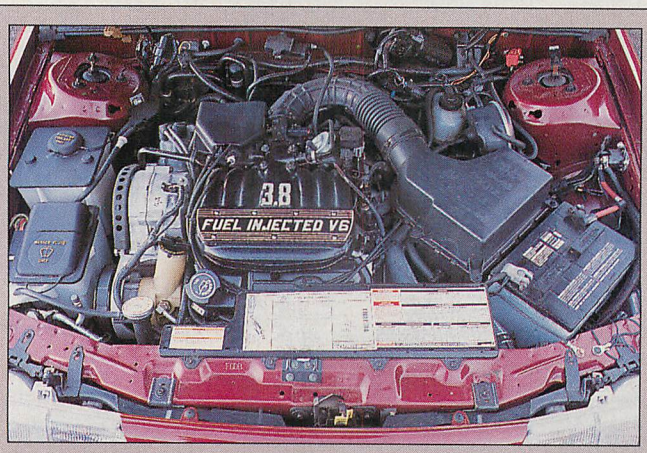
*MSRP: $25,495, 3 door 5-speed manual, excluding taxes, license, freight, dealer charges and options. Prices subject to change. © 1990 Saab-Scania of America, Inc.

SAAB

air-conditioning (HVAC)—are within easy reach and in view. The rear seat can accommodate three full-size people without causing trauma.

The Premier also gets the family approval. In terms of room, the Eagle equals the Taurus in front, and offers a slightly larger area for rear-seat passengers. An oddly shaped footwell cuts into the driver's leg room slightly. Our ES Limited test car also featured leather seats, something of a bonus for this class. Analog gauges keep the driver informed, and a set of column-mounted pods put most of the functions at the driver's fingertips. Ironically, it seems somewhat dated compared to the Ford, but the Premier's interior nearly matches the LX's in terms of function.

We were less pleased with the interior in the Chevrolet. Although the Euro sedan features analog gauges, the entire dash seems outmoded and exceptionally rudimentary. The HVAC controls hover a huge distance from the driver, and the controls for the right-hand outside mirror reside on the *passenger* door. The power-seat controls hide under the seat-back adjuster, and you have to wedge your hand between the door panel and seat to find them. And to conform to some arbitrary SAE standard for leg and head room rather than to real human beings, the Lumina gets a short, flat rear seat cushion that puts knees in faces and fannies on the floor.



THE TAURUS LX STILL REPRESENTS THE STANDARD IN THE CLASS

But then there's a large price differential between the Lumina and the competitors as provided to us. The Chevy sedan checks in almost $4000 less than our test Taurus and undercuts the Premier ES Limited by nearly $3500, making it an attractive choice for budget-minded buyers. Still, the base 3.1-liter Taurus LX, which lists for less than our test Lumina, has better seats and interior appointments, a more powerful engine, is quieter, and offers better ride characteristics. The Premier ES Limited, which only comes fully loaded, falls behind the Chevrolet in driveability and price, but jumps a few steps ahead of the Chevrolet in basic creature comfort and ride quality.

So, where does that finally leave us? Well, if you're looking for the best value among this trio of stylish sedans, the bargain-priced Chevy Lumina Euro has to get the nod. Partisans of plush, who place a high priority on luxury and are willing to pay for it, will find the most to like in the Eagle Premier ES Limited. But if you're simply shopping for the best all-around 4-door, the choice remains the same as it was five years ago: the Ford Taurus LX. MT

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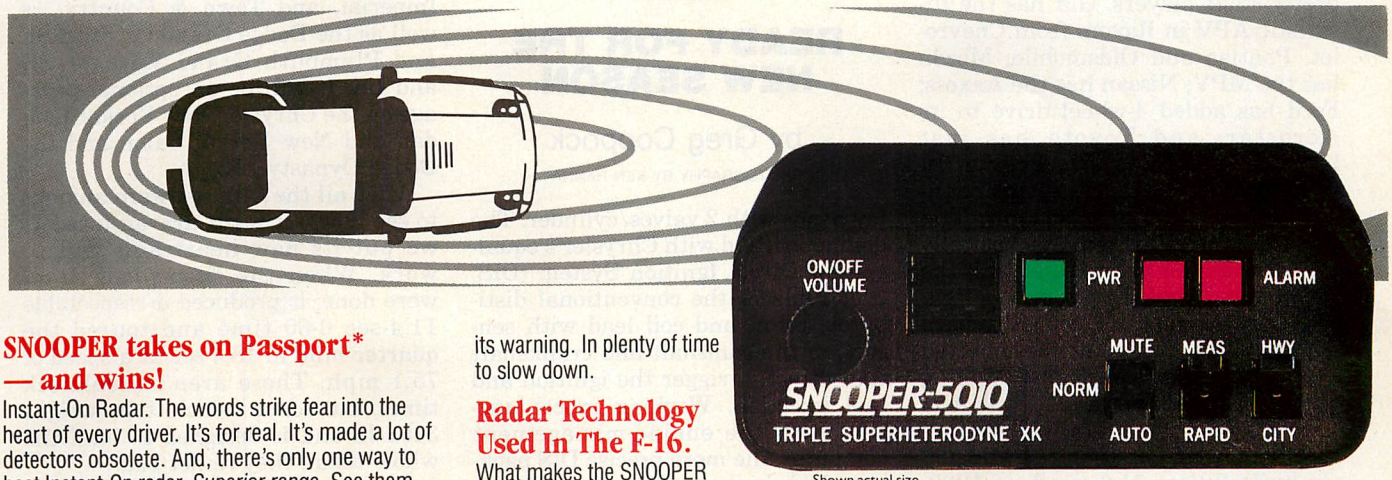

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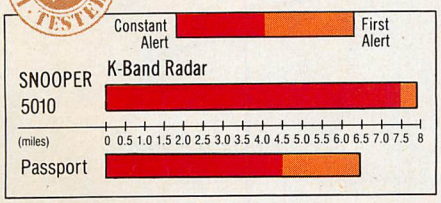

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TRUCK TEST

DODGE GRAND CARAVAN LE

READY FOR THE NEW SEASON

by Greg Coppock

PHOTOGRAPHY BY KEN HANNA

In 1984, Dodge introduced the Caravan and achieved great success with its new mini-van. The success was such that it sent the competition running to their respective drawing-boards to try to stay in step with Chrysler Corporation, yet for years, the competition has fallen a bit short.

Now it's 1990, and this year the opposing teams are suiting up some pretty stout players. GM has the futuristic APV in flavors from Chevrolet, Pontiac and Oldsmobile; Mazda has the MPV; Nissan has the Axxess; Ford has added 4-wheel drive to its Aerostar; and Toyota has just launched its futuristic Previa. In spite of all this, Dodge seems confident about the new season. The Grand Caravan LE remains basically the same as last year; it's just hit the weights and beefed up some.

The '90 Grand Caravan LE packs a new 3.3-liter multipoint fuel-injected V-6 as standard equipment. Making 150 hp at 4800 rpm and 185 lb-ft of torque at 3600 rpm, it provides significantly more punch than the Mitsubishi-built 3-liter V-6 used in 1989, which made 141 hp and 171 lb-ft of torque. While the torque now peaks higher in the rev range, at least 90% of it is available from 1600 to 4400 rpm.

This new 3.3-liter is a pure home-grown exercise, and will serve as the basis for an entire engine family in the years ahead. A compact, 60° even-firing design, the OHV V-6 has a cast iron block and aluminium alloy heads with 2 valves/cylinder. The engine is fitted with Chrysler's equally new Direct Ignition System (DIS) that replaces the conventional distibutor, rotor, and coil lead with sensors on the camshaft and crankshaft that directly trigger the ignition and fuel injection. Working in conjunction with the engine-management computer, the more precise DIS package yields improved throttle response and better idle quality than a traditional ignition system and never goes out of adjustment. An 8.9:1 compression ratio allows the 3.3-liter to burn regular unleaded gasoline. There are plenty of other laudable elements in the new V-6. A tuned intake manifold, Inconel exhaust valves, front-mounted oil filter, and a single, long-life serpentine drivebelt are just a few of its many impressive features.

Another good decision was to make the Ultradrive 4-speed automatic transaxle a standard partner of the new 3.3-liter. This transmission was first used in 1989 on selected models. Its components allow the gearbox to make a transition in a narrower rpm range, which aids in smoother shifting.

The new V-6 and the Ultradrive will be a standard combo on the Chrysler New Yorker, Fifth Avenue, Imperial, and Town & Country, as well as the Dodge Grand Caravan SE and Plymouth Grand Voyager SE and LE. It will be an optional package on the Chrysler New Yorker Landau and New Yorker Salon and the Dodge Dynasty LE.

After all the talk, we were anxious to see how our test Caravan fared as we put its new heart and soul to work. When the fifth-wheel tests were done, it produced a respectable 11.4-sec 0-60 time and toured the quarter mile in 18.4 sec at a speed of 75.1 mph. These aren't breakneck times, but for a vehicle that weighs 3651 lb and is designed to haul the whole team, they're not bad.

Speaking of hauling the whole team, you can take them to some serious away games in the Grand Caravan. It comes equipped with a 20-gal gas tank and has been rated by the EPA at 18 mpg city and 24 mpg on the open road. This will allow for some good distances between pit-stops.

Our opportunity for logging some time behind the wheel of the Grand Caravan occurred in Detroit, Michi-

The captain of the Dodge Caravan will find plenty of amenities, like cupholders, sunroof, and AM/FM/cassette stereo, to make his time behind the wheel more comfortable.

The Caravan LE has a sharp look and can comfortably accommodate the entire family for short hops or long vacation hauls.

gan, and we were able to experience this all-around player in several different situations. Its performance on the freeways was exceptional. This inconspicuous family truckster was content scampering along at 90 mph and felt quite stable doing so. When on the narrow downtown streets, the Caravan was easy to maneuver and didn't feel like part of the city's mass-transit system.

The Dodge mini-van was also capable of dealing with heavy rainfall. Intermittent wipers, rear wiper, and both front and rear defrosters all got a workout and did their jobs admirably. The Grand Caravan LE is comfortable in almost any situation.

One option didn't get tested as much as we would have liked: the power sunroof. There was a period of sunshine on our drive, so we were able to cruise California-style for a while, but not nearly long enough. We did discover another great use for our sunroof, as our nimble Mike Brockman employed it to gain entry and retrieve the keys someone had mysteriously locked in the van.

The Caravan does so many things so well that there just isn't anything to criticize seriously. Its base price is $18,840, and with all the extras we had, the bill is $23,253. We realize that 20-plus grand is plenty; however, considering the marketplace and all the utility the Caravan offers, it doesn't seem out of line.

So the competition is tougher than ever this year, but most of us feel the Dodge Grand Caravan LE is pumped and ready for the current season. MT

TECH DATA

Dodge Grand Caravan LE

GENERAL/POWERTRAIN

Make and model	Dodge Grand Caravan LE
Manufacturer	Chrysler Motors Corp., Detroit Mich.
Body style	3-door, 7-passenger
Vehicle configuration	Front engine, front drive
Engine configuration	60° V-6, OHV, 2 valves/cylinder Cast iron block/cast alloy heads
Engine displacement, ci/cc	201.5/3301
Compression ratio	8.9:1
Fuel indution system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	150 @ 4800
Torque, lb/ft @ rpm, SAE net	185 @ 3600
Horsepower/liter	45.4
Redline, rpm	6000
Recommended fuel	Unleaded regular
Transmission	4-speed auto.
Axle ratio	3.75:1
Final drive ratio	2.36:1

DIMENSIONS

Wheelbase, in./mm	119.1/3025
Track, f/r, in./mm	59.9/62.1/1522/1578
Length, in./mm	191.9/4874
Width, in./mm	72.0/1833
Height, in./mm	64.8/1645
Ground clearance, in./mm	3.4/870
Curb weight, lb	3651
Cargo capacity, cu ft	65.0
Weight distribution, f/r, %	58/42
Power/weight ratio, lb/hp	24.3
Fuel capacity, gal	20.0

CHASSIS

Suspension, f/r	MacPherson struts/beam axle
Steering	Rack and pinion, power assist
Ratio	18.0:1
Turns, lock to lock	3.0
Turning circle, ft	43.0
Brakes, f/r	Vented discs/drums
Anti-lock	Not offered
Wheels	15 x 6.0, cast alloy
Tires	205/70R15 Goodyear Invicta GL

PERFORMANCE

Acceleration	
0-30, sec	3.8
0-40, sec	5.8
0-50, sec	8.4
0-60, sec	11.4
Standing quarter mile, sec/mph	18.4/75.1
Braking,	
30-0, ft	36
60-0, ft	166
Lateral acceleration, gs	0.65
Slalom, mph	52.8

PRICE

Base price	$18,840
Price as tested	$23,253

SAAB 900 TURBO SPG

THE SWEDE GETS SWEETER

ROAD TEST

by Jeff Karr

PHOTOGRAPHY BY MIKE BANKS

Saab has a well-deserved reputation for building sensible family-oriented cars, but there's also a wild streak in those Swedes—a streak that's moved the Saab engineers to conjure up the limited-production 900 Turbo SPG, the most powerful car for sale in America in the company's four-decade history.

Essentially, the SPG is the hyperactive sibling of the garden-variety 900 Turbo. SPG stands for Special Performance Group, a handy label backed up with all sorts of mechanical changes guaranteed to make this the swiftest Saab on the block.

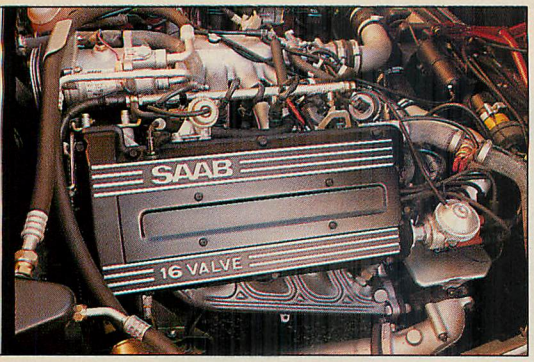
First introduced in '85, the SPG started out as a version of the 900 Turbo, spiced with trim and chassis improvements. By '87, the Saab speed merchants had added an extra 5 hp to sweeten the deal. This time around, power has jumped even further. While the regular 900 Turbo is a capable enough all-purpose liftback, the SPG adds considerable excitement to the 900's basic utility.

From a performance standpoint, the 900 Turbo SPG sits at the top of Saab's model line. The two basic body styles in the Saab repertoire are the 900 (first introduced in 1979) and the 9000, which hit the market as an '86 model. The 9000 is available as a 4-door in both sedan and hatchback configurations. The 900 can be had with two or four doors, and even as a convertible. Most of the models available in the U.S. share the same basic powerplant, a 2-liter inline four with a 16-valve alloy head. In normally aspirated form, it makes 128 horses, and with a turbo putting on the pressure, the power jumps up to 160 hp. The 900 Turbo SPG registers 175 hp at its peak. In the 9000 series, the engine is mounted transversely instead of longitudinally as in the 900. A new 2.3-liter engine using the same 16-valve cylinder head is available in the 9000; it will be in normally aspirated form only, with a power peak of 150 horses. All Saabs since day one have been front-drivers, and the current models continue that tradition.

Of the two basic models Saab currently builds, the 900 is positioned below the 9000 in terms of price and luxury, and its interior accommodations are a bit smaller. As the older of the two designs, the 900 possesses considerably more of the famed Norse weirdness that has characterized Saab's rolling stock in the past. Take, for example, the ignition key, which is positioned on the floor, between the front seats. It can only be removed with the car in reverse. Not too convenient. The power window switches are down on the floor too; they're difficult to find and operate.

But the most bizarre is the climate control system, which is as baffling as an ancient Swedish fertility dance and not nearly as much fun. Besides the unfathomable pictographs that ring the selector knob, there's the little business of temperature control and air sourcing.

We'll take a shot at explaining the layout. The center vents in the dash supply outside air at its ambient temperature, or fully refrigerated if the separate air-conditioning button is pressed. The temperature control knob doesn't affect the temperature



of the air coming out of the center vents, but the fan speed knob does control the amount of air that spills out. There's no way to heat the air coming out of these center vents, but they can be closed manually. The vents on either side of the dash operate more conventionally; they deliver air at any temperature you like from refrigerated to heated. What all this means is that nearly continuous fiddling is required to maintain a comfortable temperature in the cabin, particularly when the car moves into air of different temperatures, which comes right through center vents, unless they're off or the system is set to recirculate. Got all that?

The wackiest aspect of the ventilation system is that, by depressing the air-conditioning button, then turning the temperature selector to full hot, you'll get flaming hot air through the side vents and an Arctic blast through the center vents. Any discussion of why the Swedes have built this capability into the 900 is beyond the scope of this article.

Given time with the car (a lot of it), most drivers adapt to the Saab's idiosyncrasies. Eventually, the 900 grows on you. If you learn the proper procedures and hold your mouth just the right way, you can operate the Saab's various systems with relative ease.

Once you're past the initial awkward phase, you'll find the SPG is quite a capable car. With a lower ride height and 195/60VR15 Pirelli P600s in place of the 185/65 tires fitted on the other 900 models, the car's feel is sporting, not staid. Recalibrated dampers tighten up the ride further and are specially tuned to take the edge off body roll during sudden maneuvers.

In the engine department, The SPG gets a Mitsubishi turbocharger in place of the Garrett unit of the regular 900 Turbo. Recalibrations in the engine management system raise maximum boost pressure by about 1.5 psi to a peak of 12.3 psi. Now the boost comes on a bit sooner, and the thrust is stronger, with 175 hp available at 5500 rpm, and 195 lb-ft of torque at 3000 rpm.

Finally, the SPG comes with a full complement of luxury items as standard equipment. There's a gray leather interior and leather-wrapped steering wheel. Saab also throws in an electric sunroof and aero-look lower body panels. The cast alloy wheels, too, are unique to the SPG. The overall look is that of one tough Swede.

And the look is backed up with some respectable performance capabilities—particularly when viewed from a handling standpoint. The SPG laps the 200-ft-diameter skidpad at an impressive 0.85 lateral g, which is in genuine sports car territory. In the slalom, the 900 SPG has impeccable manners. The car is remarkably predictable in sharp transient maneuvers, and logged an excellent 65.4-mph average speed through the cones. Only a handful of current production cars can do much better than that. Braking performance is exemplary, as well. The Saab 900 SPG requires just 126 ft to stop from 60 mph. Any way you look at it, the Saab has one formidable chassis.

Turned loose on the quarter mile, the SPG asserts itself as King of the Saabs, but is still something less than a dragstrip stormer. The Saab has a bit of trouble putting its 175 horses to the ground intially, but torque steer is well controlled and the car accelerates straight ahead. A 0-60 time of 8.5 sec puts the SPG a couple pegs down on a lot of sporty cars that shave up to 2 sec off that figure, often for substantially less money. The 16.3-sec 86.8-mph quarter-mile clocking falls into the same category.

When you put the SPG to work in the real world, you find that it's a versatile piece of engineering. The in-

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terior is unusually large, big enough to accommodate a quartet of six-footers without mussing anybody's hair or banging any knees. And if your taste runs more toward inanimate objects than human companionship, the rear seat folds down to create a huge cargo area easily accessible through the rear hatch.

The spacious accommodations make the Saab a nice traveling machine—with a few caveats. The ride is decidedly choppy, particularly over those cursed expansion joints that line many concrete highways. We noticed several minor, but persistent, interior squeaks and rattles. There's also a healthy amount of tire thump and road noise transmitted into the car—the sort of thing that makes you acutely aware of changes in the road surface. After a time, you'll find yourself unconsciously selecting the smoothest lane on the roadway, avoiding the lumpy pavement in the well-worn truck lane. Engine noise is also somewhat of a bother. At low revs, the 2-liter four is unobtrusive, but noise and vibration seem to rise in lock-step with the power output. By the time the 6000-rpm redline is reached, all eyes in the car are fixed on the tachometer just to make sure all this noise is really okay. It is.

In fact, the little inline four has earned quite a reputation for reliability over the years. It hasn't, however, distinguished itself in terms of noise and vibration control. With the addition of balance shafts (as on the new 2.3-liter Saab engine), the SPG powerplant would be a lot more fun to put to work.

A handful of ergonomic oddities make the SPG driving experience unique. The front seats are nicely padded and beautifully upholstered, but they lack any form of lumbar adjustment, and the seatback angle adjusting knob is tough to reach. Lateral support could be improved, as well. Most drivers will find the airbag-equipped steering wheel unusually high and far away. And that's precisely where it will stay, since no means of adjustment is provided. Some of our drivers thought the shift lever (the SPG comes only with a 5-speed manual transmission) was too low. Everyone had occasional trouble getting into 1st or reverse when at a stop. Partially engaging the clutch seems to give the gearbox the necessary added incentive to get underway. And all drivers were less than thrilled with the rubbery, indirect feel of the shift linkage. As we said, the Saab 900 SPG is a quirky car.

It's also a pretty fun car. When you finally reach someplace where you

TECH DATA

Saab 900 Turbo SPG

GENERAL

Make and model	Saab 900 Turbo SPG
Importer	Saab-Scania of America, Inc., Orange, Conn.
Body style	2-door, 5-passenger
Drivetrain layout	Front engine, front drive
Base price	$28,995
Price as tested	$29,378
Options included	Dest/hdlg, $383
Typical market competition	BMW M3, Audi Coupe Quattro, Toyota Supra

DIMENSIONS

Wheelbase, in./mm	99.1/2517
Track, f/r, in./mm	57.2/57.7/1456/1466
Length, in./mm	184.5/4687
Width, in./mm	66.7/1695
Height, in./mm	55.3/1405
Ground clearance, in./mm	6.0/152
Manufacturer's curb weight, lb	2945
Weight distribution, f/r, %	61/39
Cargo capacity, cu ft	21.9
Fuel capacity, gal	18.0
Power/weight ratio, lb/hp	16.8

ENGINE

Type	Inline 4, liquid cooled, cast iron block, cast alloy head
Bore x stroke, in./mm	3.54 x 3.07/90.0 x 78.0
Displacement, ci/cc	121/1985
Compression ratio	9.0:1
Valve gear	DOHC, 4 valves/cylinder
Fuel/induction system	Multipoint EFI, turbocharged, intercooled
Horsepower, hp @ rpm, SAE net	175 @ 5500
Torque, lb/ft @ rpm, SAE net	195 @ 3000
Horsepower/liter	88.2
Redline, rpm	6000
Recommended fuel	Unleaded premium

DRIVELINE

Transmission type	5-speed man.
Gear ratios	
(1st)	4.56:1
(2nd)	2.65:1
(3rd)	1.73:1
(4th)	1.25:1
(5th)	1.00:1
Axle ratio	3.89:1
Final drive ratio	3.03:1
Engine rpm, 60 mph in top gear	2600

CHASSIS

Suspension

Front	Upper and lower control arms, coil springs, anti-roll bar
Rear	Beam axle, leading and trailing links, Panhard rod, coil springs, anti-roll bar

Steering

Type	Rack and pinion, power assist
Ratio	21.7:1
Turns, lock to lock	3.7
Turning circle, ft	33.8

Brakes

Front, type/dia., in.	Vented discs/11.0
Rear, type/dia., in.	Discs/10.2
Anti-lock	Standard

Wheels and tires

Wheel size, in.	15 x 5.5
Wheel type/material	Cast alloy
Tire size	195/60VR15
Tire mfr. and model	Pirelli P600

INSTRUMENTATION

Instruments	125-mph speedo; 7000-rpm tach; fuel level; coolant temp; turbo boost; clock
Warning lamps	Oil; temp; batt; upshift; airbag; parking brake; ABS; brake fluid

PERFORMANCE AND TEST DATA

Acceleration, sec

0-30 mph	2.8
0-40 mph	4.6
0-50 mph	6.2
0-60 mph	8.5
0-70 mph	10.9
0-80 mph	13.9
Standing quarter mile, sec @ mph	16.3 @ 86.8

Braking, ft

30-0 mph	30
60-0 mph	126

Handling

Lateral acceleration, g	0.85
Speed through 600-ft slalom, mph	65.4

Speedometer error, mph

Indicated	Actual
30	28
40	38
50	48
60	58

Interior noise, dBA

Idling in neutral	49
Steady 60 mph in top gear	69

FUEL ECONOMY

EPA, city/hwy., mpg	20/28
Est. range, city/hwy., miles	360/504

can really turn the SPG loose, the picture brightens substantially. The SPG exhibits a surprising amount of grip in the corners, and body roll is so well controlled it ceases to be a factor in any but the most brutal transient maneuvers. The suspension keeps the Saab planted nicely, even in bumpy turns, and lends the car a sense of stability and accuracy. At the absolute cornering limit, the SPG understeers. But unlike most front-drivers, the SPG retains a crisp, responsive steering feel right to the end. You're not plowing along sloppily; instead you carve through in a tidy, gratifying manner. There aren't many front-drivers that work better.

When the revs are kept anywhere above three grand, the SPG pulls nicely, and turbo lag is just about non-existent. For best results, shifts should be held off until redline. For a 2-liter DOHC engine, the 6000-rpm redline is a good 1000-rpm down on comparable turbo motors from Japan. Given the 2500-rpm drop during upshifts, the Saab needs to be crowded up against the rev limiter if you really want to hustle.

Getting slowed back down poses little problem in the Saab. The 4-wheel discs are powerful and fade-resistant and are easy to modulate under heavy braking. If things get ugly, there's an ABS system to help out; if things get *really* ugly, there's a 5-mph bumper and a driver-side airbag.

Positioned as it is at the top of the 900 lineup, the SPG carries the highest suggested retail price of the bunch. For $28,995, the SPG comes fully loaded. That puts it about $3500 up on a regular garden-variety 900 Turbo, and that gap narrows when you start loading on options to approach the SPG's equipment level. Regardless of how you equip a regular Turbo, you won't be able to match the SPG's performance, or its exclusivity. Only 1200 SPGs will be offered for sale in 1990.

With a price sitting perilously close to the $30,000 mark, the Saab Turbo SPG is by no means a mainstream choice. Other cars can approximate its performance capabilities and better its level of refinement. One car, the soon-to-be-released Mitsubishi Galant VR-4 will offer similar utility, more power, awd, and 4-wheel steering—all for many thousands of dollars less than the Saab Turbo SPG. Saabophiles will point out (quite accurately) that a Galant is not made in Sweden and is by no means a Saab. The importance of this fact depends on where your priorities lie. And on how Swedish you're feeling. MT

SECOND OPINION

Forgive me, I know maybe this is the wrong thing to say, but I like the Saab 900 SPG a lot. Sure, it has some foibles. First, there's the exterior styling, which, even with the ground-effects goodies, only a myopic Swedish mother could love. And then there are the ergonomics, the radio high in the dash, the graphic equalizer way low, and, of course, the ignition key between the two front seats, just where it should be—if you've driven nothing but Saab 900s all your life. But possibly these little foibles are why I like the car. These days, we drive a lot of Japanese automobiles that look alike and have all the buttons and knobs just so. Nothing wrong with that, but it does get a bit boring. Well, the Saab's not boring even before you put your foot into its 175-hp turbomotor. And once you're on the gas in this odd little rocket, you somehow don't care where the ignition key is.

—*Jack R. Nerad*

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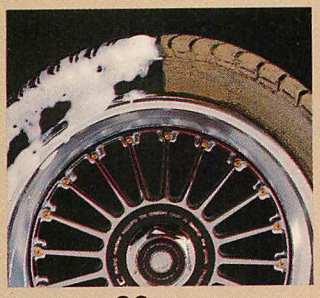

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PONTIAC FIREBIRD FORMULA

FINE-TUNING THE RECIPE FOR SUCCESS

by Ron Grable

PHOTOGRAPHY BY BOB D'OLIVO

No matter how you care to look at it, Pontiac has gotten a good deal of mileage out of the venerable Formula name. An integral part of the Firebird lineup since 1970, this esteemed *nom de F-body* has always been affixed to a package that offers buyers the opportunity to custom-spec a true high-performance machine on a relatively modest budget. Although the entire Firebird lineup gets a distinctive new look for the '91 model year, the Formula still carries on that admirable tradition. Through a bit of judicious package-juggling, Pontiac has managed to retain the 1990 base price on this latest iteration. The $14,610 sticker includes a 170-hp 5-liter throttle-body injected V-8, air conditioning, and AM/FM/cassette stereo, which hardly qualifies it as an exercise in austerity. But those willing to part with a bit more cash in the hopes of embarrassing unwary Mustang GT owners can opt for either of two serious upgrades. Check option LB9 and you get the 225-hp Tuned Port Injection 5-liter V-8 that comes in the Trans Am. Choose option B2L and you get the 235-hp 5.7-liter TPI powerplant used in the Trans Am GTA, although this engine must still be matched to a 4-speed automatic transmission. Our car, fitted with the 5-liter/5-speed manual combo, requisite Performance Enhancement Group (4-wheel power disc brakes, limited-slip differential, 3.41:1 performance axle ratio, dual converter exhaust, and engine oil cooler), plus a select package of lesser comfort and convenience items bottomlined at a reasonable $17,147, including a rather heady $459 freight charge.

At *Motor Trend* we've never made any secret of our love for high-power V-8 engines. And while we admit to a great deal of admiration for the latest multicammed multivalved high-tech offerings from Europe and Japan, we still have a genuine warm spot in our hearts for GM's good old, tried-and-true small-block V-8 like the one in this new Firebird. After all, it's the quintessential OHV

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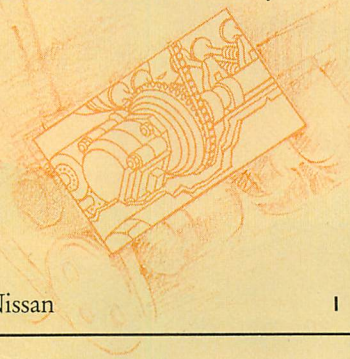

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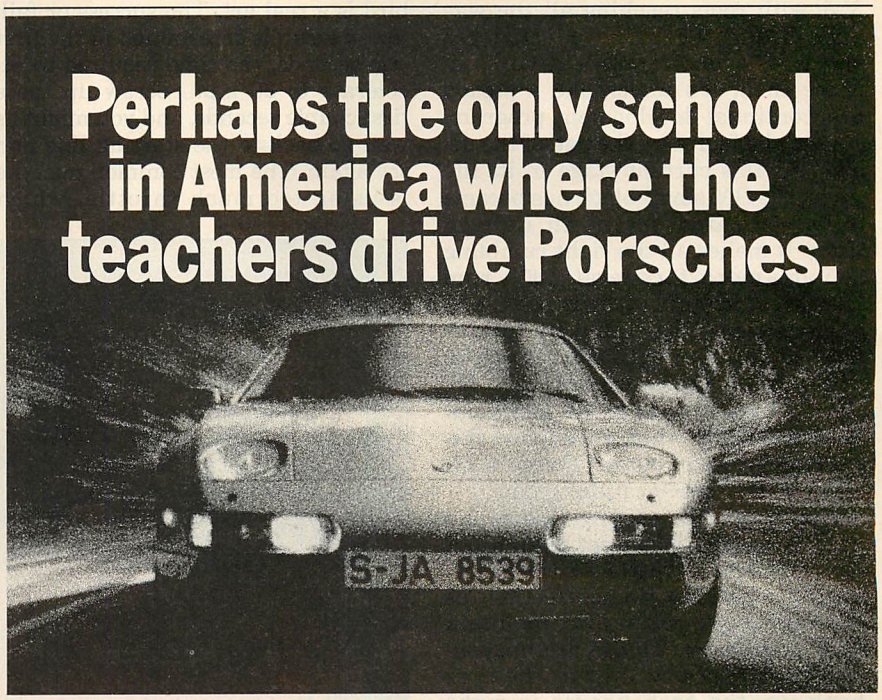

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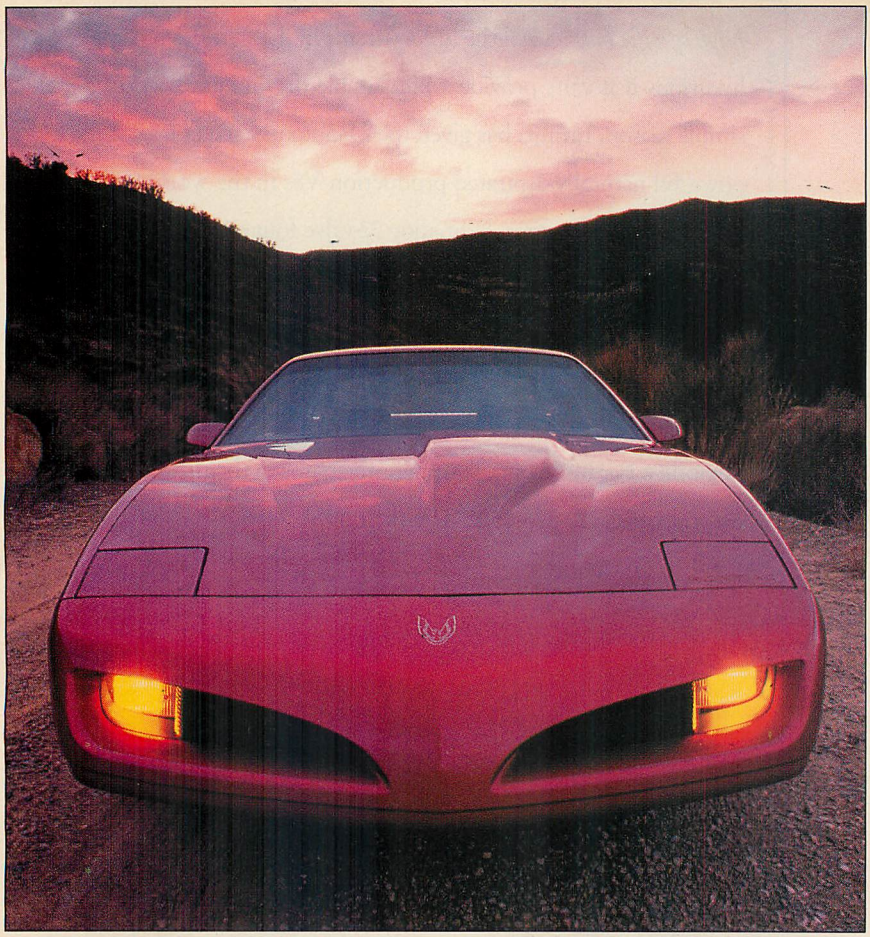


V-8, with roots reaching all the way back to 1955, when Chevy introduced the now-legendary 265cid version. Since then, it's undergone a steady and continual development program.

Don't be fooled by the age of the design. At this current stage in its life cycle, the GM small-block has become a sophisticated engine in its own right. It makes all the right rumbling sounds, more torque at 1000 rpm than most imports at their peak, and a sweet, moaning sound at full-tilt boogie that's pure music to the ears of any self-respecting engine man. It's clearly born to run, as we found out most definitely when we slipped this little red rocket out to Pomona for some formal acceleration testing.

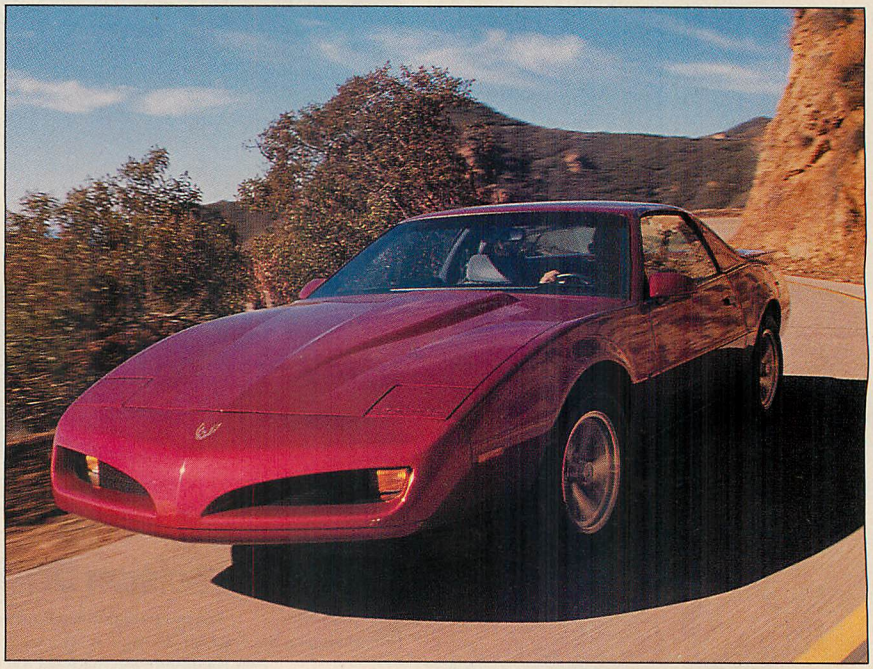
Roll up to the staging line in 1st gear, a steady 3000 rpm, clutch out quickly, and throttle to the floor, making small steering corrections as the big Goodyears try to maintain their composure. Things are happening really fast now: Just as the tires hook up, the tach needle is right there at redline; powershift to 2nd, tach needle a little slower now, into 3rd, and there's time to enjoy the magical engine sound. Then it's through the traps—15.0 sec after the leave—at 94.3 mph.

Optimizing the leave in the Firebird is a real art. The success or failure of a run is determined in the first two seconds, the time required to accelerate to 30 mph. Screw up these first couple seconds, and you might as well go back to the starting line and try again. The most common mistake is using too much throttle, which causes excessive tire spin and a big friction loss at the tire contact patch. The opposite is not enough throttle, which causes the Formula to stumble as the clutch locks the crankshaft to the axles without enough torque to accelerate the vehicle.

Get everything just right, and the potent acceleration tells you the tires are hooked up, the tach rockets around toward redline, and the Pontiac pushes you hard back in the seat. It feels great, and the Firebird Formula is good at it. The 245/50ZR16 Goodyears help, as does the selection of ratios for the 5-speed manual transmission.

The skidpad performance is typical for a GM F-car, which is to say moderate to severe understeer, unless the throttle is used to provoke power oversteer. Power oversteer is unstable and not recommended—for any reason—which is why chassis designers *always* tune their chassis to have some degree of understeer. The Formula managed a more than respectable 0.88 g. Transient response is not the Pontiac's strength because of its high polar moment of inertia, but we were pleasantly surprised by a speed of 64 mph through our standard slalom. It takes considerable force to muscle the Pontiac through the gates, but 64 mph puts it in select company, like the new Toyota MR2 Turbo, Chevrolet Beretta GTZ, and Acura Integra.

The Pontiac Formula's braking performance was also a pleasant surprise, and the combination of brake balance, weight distribution, and ZR50 Goodyears hauled the Firebird from 60-0 mph in a short 127 ft. Do-



ing a lot of testing, as we do at *Motor Trend*, we've come to think short stopping distances and stability are mutually exclusive in non-ABS cars, but the Firebird is an exception. All stops were straight, lacking in drama, and the only criticism was slightly high pedal pressure.

Pontiac opted for an early launch of its '91 flock of Firebirds. While the V-6-powered base model is projected to account for some 66% of the 70,000 Firebirds the division expects to sell during the next 18 months, the marketing types are forecasting the popular Formula will chalk up sales of nearly 20,000 units, with the premium-priced Trans Am and Trans Am GTA equally splitting the rest of the pie. To help rekindle buyer interest in this veteran platform, all versions receive a number of minor cosmetic styling changes that are derivative of the Pontiac Banshee concept car, a vehicle that played to rave reviews on the '88 auto show circuit. The hoodline and new front fascia taper quickly, rolling under for a rounded, snarky look at the front. The grille openings give the car a distinct "cat's-eye" expression, accentuated by the smaller halogen pop-up headlights. At the rear, a new fascia and flatter spoiler have been incorporated, and the CHMSL (pronounced chim-sill; Detroitese for center high-mounted stoplight) has been cleverly located directly in the driver's line of sight through the rearview mirror. Interior is carryover, with the exception that all Firebirds get the driver-side airbag as standard equipment.

The 5-liter TPI V-8 produces 225 hp at 4600 rpm with 300 lb-ft of torque at 3200 rpm. The induction system is the GM TPI multipoint fuel injection, with 91 octane premium unleaded recommended, and the dual catalytic converter exhaust system is also standard. Our test car was equipped with the optional WS6 Rally-Tuned suspension, which uses larger front and rear anti-roll bars, gas shocks with deflected disc valving (different

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Quiet, comfortable. The creation of a solid, well-built body is essential to cars like the Infiniti Q45 in providing a solid, luxury feel. Along with items such as enlarged cross-sectional frame areas and increased use of adhesives and spot welding, rigid urethane foam (density greater than 0.13 g/mm^3) is injected into front and center pillars and rear floor crossmember during assembly. The result is a specific load body strength that is more than twice the industry requirement. Which means a tighter platform for mounting suspension components and a marked decrease in the transmission of noise, vibration and road harshness into the passenger compartment. For more information or the name of the Infiniti dealer nearest you, call 1-800-826-6500. Thank you.

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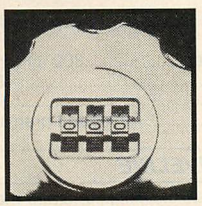

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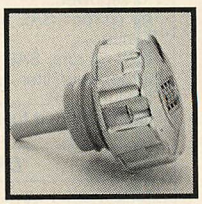

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shock rates for different bump inputs), limited-slip differential, and disc brakes at all four corners.

As good as the Firebird Formula is at the dragstrip, we know it must live the majority of its life slogging around in the daily grind, so we also spent considerable time with it under those circumstances. This particular driveline combination results in an extremely flexible vehicle. It can be used hard with the manual transmission, smoking the tires, leaving everyone else in slow motion, but it's equally happy plodding along in traffic with the transmission left in 4th. The abundant torque will pull cleanly away from as low as 15 mph in 4th, and it's only when a quick squirt is needed that a lower gear is necessary.

On freeways, the Formula feels relaxed and competent. The deep overdrive 5th gear restricts acceleration at 60-70-mph freeway speeds, but on the other hand, it reduces engine noise, increases mileage, and keeps the interior ambient noise level down to a respectable level. The 70 dBA reading at a steady 60 mph is quite good for this car in light of its "performance-tuned" dual exhaust, which has a deep, throaty rumble. Sounds great when you're using the engine hard, but it's not something you want to hear for extended steady-state cruising, and the tall final drive goes a long way toward mitigating the exhaust note.

Ergonomics in the Firebird are not perfect for a six-footer, and we found it necessary to recline the seatback at a larger angle than we would have otherwise for adequate head clearance. Lowering the seat a couple inches would work wonders. Is anybody at Pontiac listening?

One of the fringe benefits of this job is that we get to take all these great cars out and see how they perform on our individual favorite roads. Each staffer has his own preferences, and after many trips, in many different cars, fine nuances can be felt in test cars. The Firebird Formula dealt with my favorite twisty road in a manner that reminded me of an NFL defensive lineman: not a lot of finesse, but a dogged determination and willingness. Enter the corner too fast, and it just understeers until it scrubs off the excess speed. Power on too early, and it'll oversteer, but not viciously, and there's plenty of time to gather it back up. Brake too hard, and it'll remain stable, while you modulate the pedal to get back under control.

Normally a solid rear axle spells trouble over bumpy surfaces. The rear axle is heavy and is unsprung

TECH DATA

Pontiac Firebird Formula

GENERAL

Make and model	Pontiac Firebird Formula
Manufacturer	Pontiac Motor div., General Motors Corp., Warren, Mich.
Body style	2-door, 4-passenger
Drivetrain layout	Front engine, rear drive
Base price	$14,610
Price as tested	$17,147
Options included	LB9 TPI 5-liter 225-hp engine; Performance Enhancement Group (4-wheel disc brakes; limited-slip; 3.41 axle ratio; dual converter exhaust; engine oil cooler, $444); 1SC Option Package 2 (includes numerous comfort and convenience items, $889); destination/handling, $459
Typical market competition	Chevrolet Camaro Z-28, Ford Mustang LX

DIMENSIONS

Wheelbase, in./mm	101.0/2566
Track, f/r, in./mm	60.7/61.6/1541/1564
Length, in./mm	195.1/4955
Width, in./mm	72.4/1838
Height, in./mm	49.7/1263
Ground clearance, in./mm	4.5/115
Manufacturer's curb weight, lb	3318
Weight distribution, f/r, %	56/44
Cargo capacity, cu ft	12.4
Fuel capacity, gal	15.5
Power/weight ratio, lb/hp	14.7

ENGINE

Type	V-8, liquid cooled, cast iron block and heads
Bore x stroke, in./mm	3.74 x 3.48/94.9 x 88.4
Displacement, ci/cc	305/5001
Compression ratio	9.3:1
Valve gear	OHV, 2 valves/cylinder
Fuel/induction system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	225 @ 4600
Torque, lb/ft @ rpm, SAE net	300 @ 3200
Horsepower/liter	45.0
Redline, rpm	5500
Recommended fuel	Unleaded premium

DRIVELINE

Transmission type	5-speed man.
Gear ratios	
(1st)	2.95:1
(2nd)	1.94:1
(3rd)	1.34:1
(4th)	1.00:1
(5th)	0.73:1
Axle ratio	3.42:1
Final drive ratio	2.50:1
Engine rpm, 60 mph in top gear	2050

CHASSIS

Suspension

Front	Struts, coil springs, anti-roll bar
Rear	Live axle, torque arm, trailing arms, Panhard rod, coil springs, anti-roll bar

Steering

Type	Recirculating ball, power assist
Ratio	12.7:1
Turns, lock to lock	2.3
Turning circle, ft	32.6

Brakes

Front, type/dia., in.	Vented discs/10.5
Rear, type/dia., in.	Vented discs/11.7
Anti-lock	Not offered

Wheels and tires

Wheel size, in.	16 x 8.0
Wheel type/material	Cast alloy
Tire size	245/50ZR16
Tire mfr. and model	Goodyear Eagle ZR50

INSTRUMENTATION

Instruments	140-mph speedo; 8000-rpm tach; fuel level; oil pressure; volts; coolant temp; digital clock
Warning lamps	Service engine; airbag; belts; brake; security

PERFORMANCE AND TEST DATA

Acceleration, sec

0-30 mph	2.4
0-40 mph	3.7
0-50 mph	4.9
0-60 mph	6.7
0-70 mph	8.7
0-80 mph	10.8
Standing quarter mile, sec @ mph	15.0 @ 94.3

Braking, ft

30-0 mph	29
60-0 mph	127

Handling

Lateral acceleration, g	0.88
Speed through 600-ft slalom, mph	64.0

Speedometer error, mph

Indicated	Actual
30	30
40	39
50	49
60	58

Interior noise, dBA

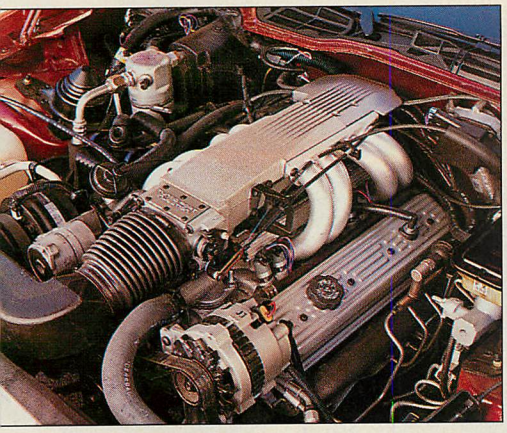
Idling in neutral	59
Steady 60 mph in top gear	70

FUEL ECONOMY

EPA, city/hwy., mpg	16/26
Est. range, city/hwy., miles	248/403

mass, which means it must follow the contour of the road. Once the axle moves upward under the influence of a bump, the springs must try to keep it in contact with the downside of the same bump, but the heavy mass is now in motion upward and doesn't want to go back down. Because of this heavy axle bounding around, solid rear-axle cars tend to skitter around over bumpy surfaces and be less than the model of stability. The Firebird Formula definitely lets you know it has a solid axle back there, but it remains stable and predictable over all but the most atrocious surfaces.

So, if you like the rumble of a traditional American V-8, if you like torque, the sound of spinning tires, the punch in the back leaving a stoplight, big, fat tires and "mag" wheels, and the visceral feel of power—V-8 power—this Pontiac Firebird could be the formula for your happiness. Check it out. MT



SECOND OPINION

With its yester-tech V-8 and oversized rear-drive chassis, the Pontiac Formula is certainly on the trailing edge of current automotive technology. So what? That doesn't stop the car from being a whole lot of fun. The Formula has heaps of V-8-style power, which is more gratifying than anything you'll coax out of any of the smaller, peakier motors you'll find in most sporty coupes today. High revs and high-tech are great, but the Formula's V-8 moves you on a more visceral level. Then there's the Formula's big, predictable rear-drive chassis—your ticket to driving amusement. On the right kind of road (smooth) or the right kind of parking lot (deserted), the Formula lets you toy with stirring amounts of oversteer, while delivering all sorts of driving fun. Fun is this car's reason for being, and the reason I always look forward to driving it.—*Jeff Karr*

Braking with a natural feel. Anti-lock braking (ABS) systems provide a significant advancement in vehicle safety by allowing the driver to retain steering control even under adverse conditions. But Infiniti feels that it is not just enough to offer ABS brakes as standard equipment on every Q45 luxury sedan and M30 sports coupe. The systems themselves must work and feel as a natural part of the driving experience. While some anti-lock systems can transmit a hard, pulsating action through the brake pedal when the ABS is activated, the Infiniti Q45 and M30 utilize an advanced ABS actuator (which controls the flow of brake fluid) to reduce the go-stop-go-stop action that can be felt by the driver. For more information or the name of the Infiniti dealer nearest you, call 1-800-826-6500. Thank you.

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Mercedes-Benz 300E 4Matic

One of the world's best all-weather sedans

by Jim Miller

PHOTOGRAPHY BY SCOTT KILLEEN

ROAD TEST

What can you say about a car that's refined to the point where it makes the term "driver transparent" seem almost an understatement? For all you can tell, the sunroof and windows on the Mercedes 300E 4Matic are powered by exterior noise, because that's the only sound you hear as the windows or power roof slide back. Likewise, touching the power mirror control alters the rearward scene as noiselessly as if a set designer shifted the view behind. The stereo adjusts for higher speed by automatically increasing the volume. To the driver, the mechanics of operation are completely invisible.

Given that kind of sophistication, it's no surprise Mercedes has developed the most unobtrusive all-wheel-drive system in the world. The company's awd design requires nothing more from the driver than a foot on the accelerator to put power to all four corners. Otherwise, it's between the road surface and the Merc's computer chips. And while some awd cars seem to have a pair of gremlins under the fenders fighting for control of the steering wheel, the 300E's 4Matic cycles in and out of engagement with nothing

more notable from the driver's seat than the flicker of a yellow lamp on the instrument panel. That, and a surprising amount of grip under questionable conditions.

It's appropriate that M-B slipped this system under its 300E. Not only is it the leader of the company's most popular series, but it's also the only line that includes a station wagon. The company feels the awd system will broaden the entire series' appeal.

That's not to say the 300E in standard trim leaves a lot to be desired. Even the base car is one of the most sophisticated sedans on the planet, boasting 4-wheel independent suspension, ABS-assisted 4-wheel disc brakes, and a 4-speed automatic transmission as standard equipment. Underhood, an all-aluminum fuel-injected SOHC 3-liter six spins out 177 hp and 188 lb-ft of torque.

To the basic 300E sedan, the 4Matic system adds approximately 300 lb (see sidebar). The major pieces include a transfer case with an integral lockable center differential flanged to the rear of the automatic transmission. The transfer case splits the power between an open front differential and a lockable rearend. The front differential is integral with the engine oil pan, but isolat-

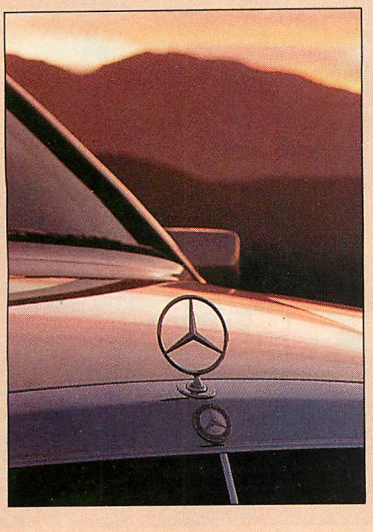
ed to use a separate oil supply. A hydraulically actuated set of planetary gears routes torque from the transfer case to the front differential.

All this additional hardware goes unnoticed to casual passersby. The all-wheel-drive Merc looks as understated as any product from the Stuttgart manufacturer; only a simple chrome "4MATIC" emblem on the trunklid betrays the car's all-weather ability. Even a tape measure won't reveal any differences between this car and its 2-wheel-drive sibling. Wheelbase, track, trunk capacity, and overall height are identical between the rwd and awd variants. The two boast identical turning circles, as well, so the 4Matic suffers no handicap in agility with the additional driving wheels.

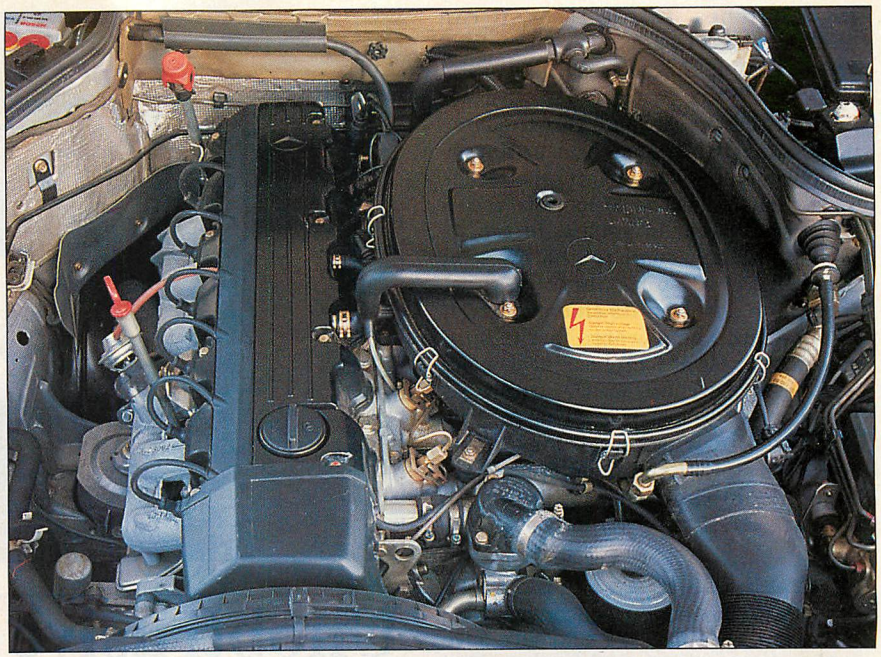
Obviously, Mercedes engineers wanted to minimize any unwanted effects, and that included driving feel. Not surprisingly, M-B has a distinct bias toward rear drive, and the car's designers wanted to keep the same rwd characteristics in the awd 300E. Consequently, M-B's 4Matic arrangement routes most of the engine torque to the rear wheels. In fact, under most driving situations, the system engages the rear wheels only, so the car feels identical to the existing 2wd sedan. And in terms of feel, little changes when the awd comes online.

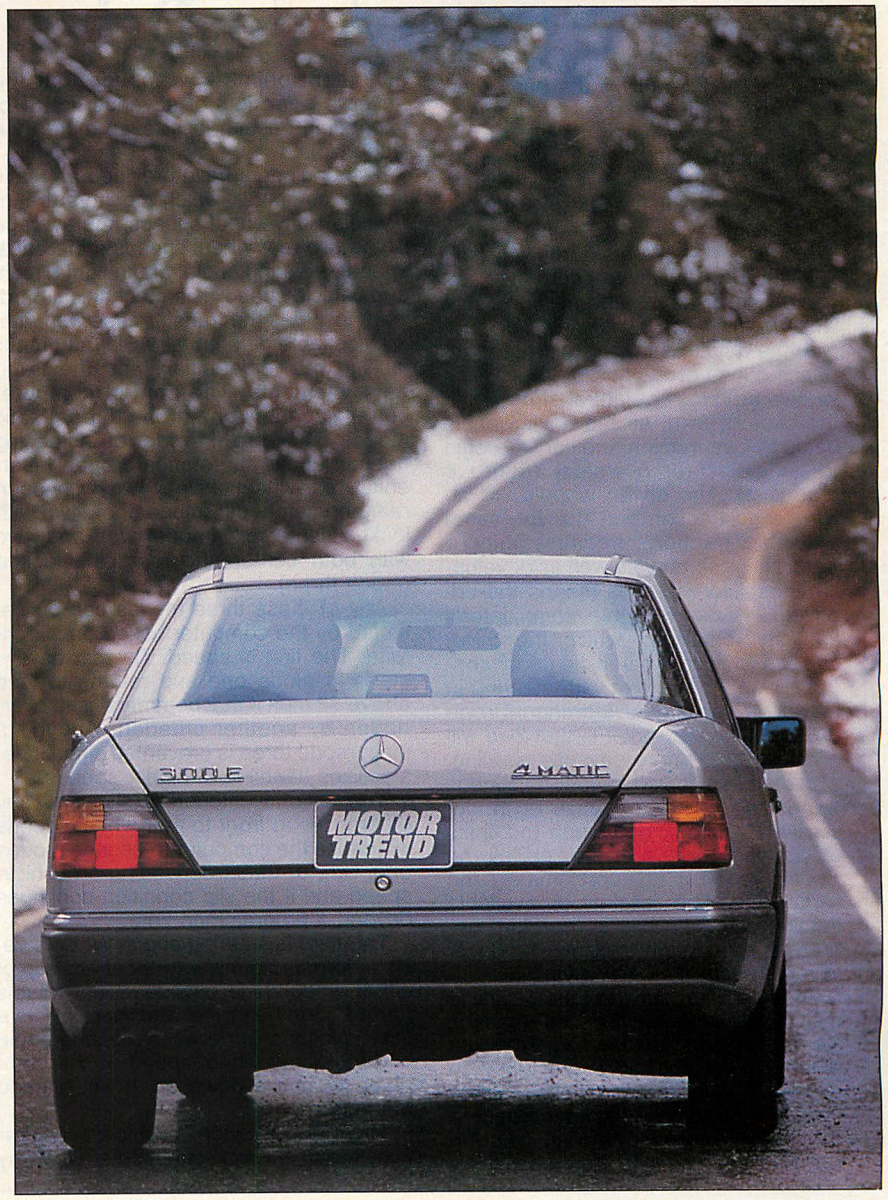
All this computer-generated magic takes place in an eye-blink and goes equally unnoticed. There's no shift in steering feel, no crude torque steer, no switch from understeer to oversteer or vice-versa, and no rude suspension movements. Even under power on loose gravel, the 300E simply hooks up and hauls the mail. On paper and in operation, the 4Matic is probably the slickest automotive awd system on the market.

When it comes to acceleration, however, available traction isn't usually the problem. If the 300E 4Matic has any handicap at all, it's in the available power. For 1990, Mercedes provided the 300CE coupe with a 221-hp variation of the new 300SL's DOHC 24-valve six, but the 4Matic gets by with the basic 177-hp 12-valve engine. Even the 3315-lb base 300E won't qualify as quick, and with an additional 300 lb to carry, the SOHC six in the 4wd sedan has its work cut out for it. Starting in 1st gear, our



EVEN AN AVERAGE DRIVER CAN PUSH THE MERC INTO A CORNER WITHOUT FEAR OF GETTING BITTEN





test vehicle ate up exactly 9.2 sec getting from 0-60 mph. Add to it the standard Mercedes-Benz 2nd-gear starts (the 4-speed auto downshifts to 1st only when severely provoked), and you're looking at a leisurely spin up to 60 mph.

Once it's underway, however, this Mercedes lives up to its autobahn upbringing. Staying below triple-digit speeds requires constant attention to the speedometer. All the usual seat-of-the-pants cues—such as steering feel or wind noise—subtract 20-30 mph from your actual speed. And once it finds its legs, this sedan can funnel leagues of asphalt through its rearview mirrors as effortlessly and comfortably as any car you can find. Moreover, there's no misleading input from the 300's chassis. The only feedback you get from the Mercedes falls under the heading of useful data. The steering, which seems a bit heavy and awkward around town, becomes reassuring and communicative once the car reaches freeway speeds. And even disregarding the standard anti-lock, the brakes provide enough feel to keep the ABS just at the edge of engagement.

That competence isn't speed related, either. Though the 300E really shines on autobahn-level roads, it's not about to trip over itself on twist-

ing two-lanes. In the esses, it can challenge most sports cars on a fast country road. Admittedly, at 0.76 g, it's not about to take any laurels home from the skidpad. But the car's needle-sharp response and unflappable poise means that even an average driver can push the Merc into a corner without fear of getting bitten.

Though the sedan might be a bit modest in all-out performance, there's no shorting its smoothness. It might as well be powered by the muscles in your right foot, because the engine never intrudes on the cabin. As you stroke the accelerator pedal, the car eases forward, and the muted roar from under the hood is no more bothersome than the sound of the surf at a Malibu beach house. A mo-

Unobtrusive Auto Drive

As mentioned in the accompanying story, the 4Matic's automatic drive system is indeed unobtrusive. That does not, however, imply lack of sophistication.

The system functions by using any of three modes (above the base rear-drive) to optimize the available traction, but it seems eminently logical to ask why all that sophistication is needed. Why not just full-time 4wd, which would maximize traction under any and all conditions?

Mercedes engineers feel 4wd isn't as stable as 2wd under certain conditions. The disadvantage lies near the limits of adhesion, where 4wd doesn't give the driver as much warning of impending loss of traction by the driving wheels (and loss of lateral stability). In the case of 2wd, as the drive wheels begin to lose traction, the car will begin to understeer or oversteer (front- or rear-drive). The driven wheels will always lose traction first (for the same available traction), because they're transmitting torque, as well as developing lateral forces. This means the undriven wheels will have some lateral capacity remaining, which the driver can use to bring the vehicle under control. This can be done with steering in rear-drive vehicles or slowing in front-drive, but the key point is that 2wd will give the driver more advance warning.

In the case of 4wd, cornering speeds are usually higher (because of the increased traction), and when the limits of lateral stability are reached, all the wheels reach it at approximately the same time. The residual or available traction at either axle is therefore unlikely to be enough to allow the driver to regain stability once it vanishes.

These differences, and the desire to maintain the normal 2wd driving feel, led the engineers to incorporate the automatic control and implementation of 4wd. Their goal was to let the driver know when traction has deteriorated to the point where additional traction (4wd) is needed, and they chose engagement points low enough that the driver is given lots of advance notice of impending traction loss (even more than with 2wd).

The engineers have provided a 4Matic control computer, which monitors the individual front wheel speeds, the average of the two rear wheel speeds (differential speed), steering angle, brake-light circuit, and vehicle speed. The mechanical hardware includes the transfer case with integral lockable differential, ASD (automatic locking rear differential), and the front-drive elements. The control computer can engage any one of the three 4Matic modes. They are (in order of increasing traction above the standard open differential rear-wheel drive): 4wd with open rear and center diff (mode one), 4wd with locked center diff (mode two), and 4wd with both center and rear diffs locked (mode three).

Any of these three modes can be selected by the computer based on six criteria. The first is speed. The car always starts in mode one and returns to 2wd above 12 mph if that command isn't overridden by another criterion. Above 22 mph, mode three is prevented since it destabilizes handling at higher speeds.

The second criterion is slip, and any differences in front-to-rear wheel speeds will cause the computer to engage modes one, two, or three, depending on vehicle speed and if the slip condition continues beyond a programmed time.

The third is steering angle. When a vehicle corners normally (without any slip of either wheel), the outside wheel travels further than the inside, and there exists a fixed relationship between steering angle and individual wheel speed. If the computer notices a deviation, it will engage mode one.

The fourth criterion is vehicle acceleration, which the computer determines by monitoring rate-of-change of wheel speed from the ABS sensors. Above a specified level of acceleration, the computer prevents the change back to 2wd at the 12-mph trigger point. Hard acceleration, therefore, always keeps the car in mode one.

The fifth criterion is time. If any of the conditions for 4Matic engagement repeat themselves within a specified time period, the engagement time for the selected mode is extended. This prevents the computer from switching wildly back and forth between modes.

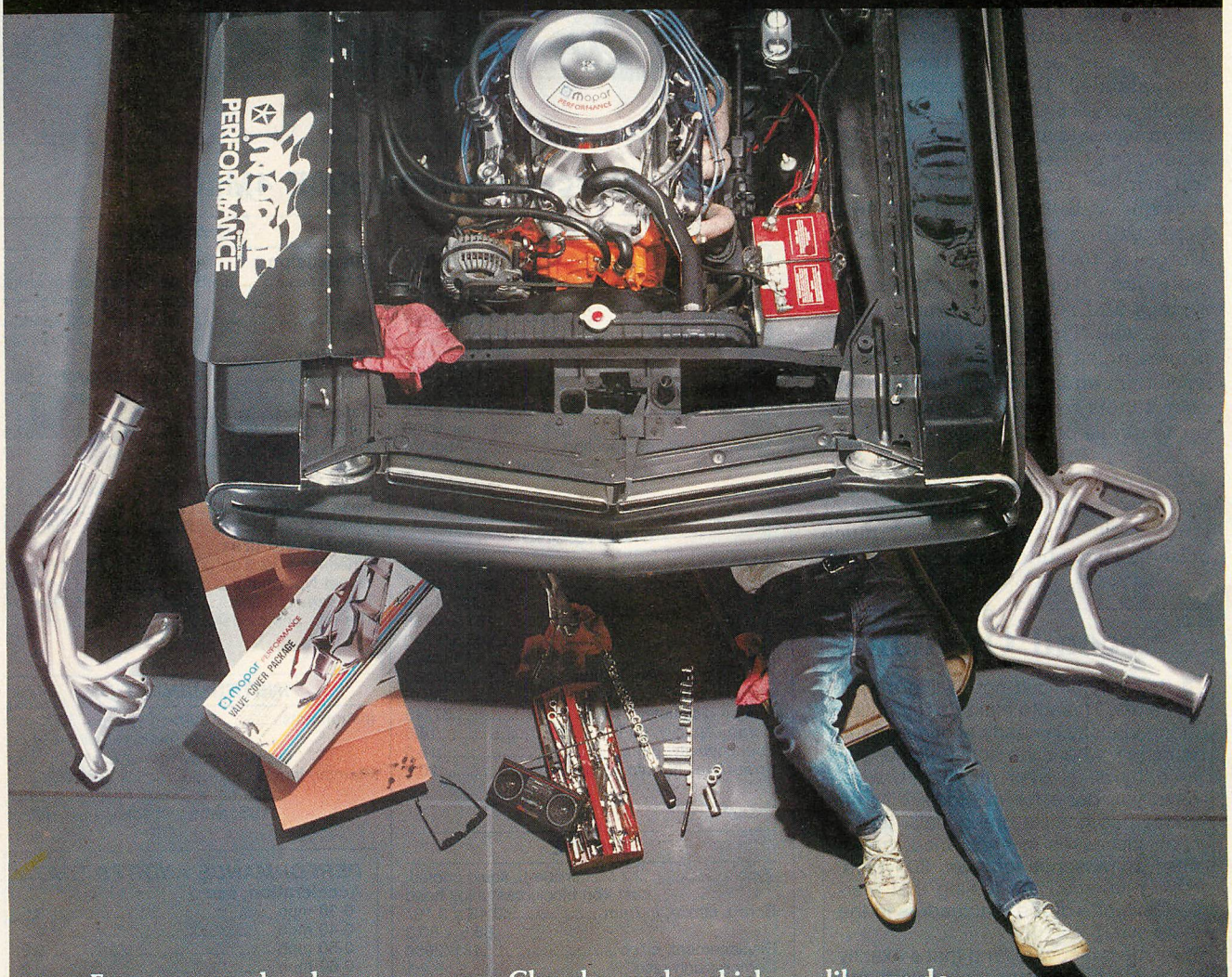
The final criterion is brake actuation. ABS functions by controlling individual wheel lockup and would be prevented from doing so if the differentials were locked. When the computer sees the brake light circuit activated, both diffs lock and front-drive is disabled to allow the ABS to control incipient lockup and preserve directional stability.

In mode three, with both diffs locked, the ASD (rear locking diff) is brought online. The speed and power of the control computer allows the ASD to be selective, overcoming some of the limitations to purely mechanical locking diffs. ASD is only engaged at low speeds and when slip exists front/rear. It's also able to discern wheel-speed differences when cornering, so that it only functions when actual slip exists, and it disengages at high speed, or on "overrun," where Mercedes has determined it's destabilizing.

The 4Matic computer is also smart enough to "learn" things about the vehicle so it doesn't overreact to such conditions as low tire pressure, tire wear, and vehicle load, and an indicator light in the analog speedometer display illuminates when any of the 4Matic modes is engaged. This advises the driver that the available traction is decreased to the point that basic rear-drive is approaching its limits, and even though the assembled technology of Mercedes-Benz is on the job, it might be a good idea to slow down a little.

—Ron Grable

We encourage lying around in the shade.



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mentary dip in the tachometer and a light surge in acceleration signal each gearshift.

We're not saying that the 300 wraps you in some kind of sensory deprivation cocoon. It simply acts as a filter, letting through the important information and sifting out the extraneous input. That's the major difference between the Mercedes approach to luxury and, say, Detroit's traditional definition.

This year, however, the 300-class receives a number of Detroit-style changes, and several of them should be applauded. Revised exterior body panels protect the sides from errant shopping carts and the like. The 300E 4Matic (and the 300E sedan) sports a full leather interior (instead of the previous M-B Tex), something to be expected in a $53,000 car. Moreover, Mercedes took pity on the average American tush and revised the springs and softened the seat covering, as well. Thicker window glass improves noise insulation. Additional wood trim and carpeting on the lower door panels reduce the Teutonic austerity some people expect in a Mercedes.

And it's now possible to close the windows and sunroof via the door or trunk lock. Just don't expect much noise as they slide shut. **MT**

Second Opinion

It's *really* difficult not to like a Mercedes. The auto maker's reputation in the industry is nearly spotless. Even in racing, where the conventional philosophy is, "Never mind that, what have you done for me today?" Mercedes has godlike credentials. Its recent successes in endurance racing, after an absence of over 30 years, have reinforced the feeling that Mercedes is one of the real leaders in the industry.

Leaders innovate, and that's exactly what Mercedes has done with the 300E 4Matic. The powertrain and control computers have the capability to direct driving torque to any of its four wheels, and does so strictly as available traction demands. With its SRS (airbags), ABS (anti-lock brakes), KE-V (engine management), and ASD (locking differentials), this vehicle rivals a Cray supercomputer in technological power.

As an added bonus, the Mercedes technology is inconspicuous. The drive system switches between its many options without a whisper, elevating the capabilities of the vehicle without intruding on the driving environment. That's the way technology should serve mankind, don't you think? —*R.G.*

TECH DATA

Mercedes-Benz 300E 4Matic

GENERAL

Make and model	Mercedes-Benz 300E 4Matic
Importer	Mercedes-Benz of North America, Montvale, NJ
Body style	4-door, 5-passenger
Drivetrain layout	Front engine, all-wheel drive
Base price	$52,550
Price as tested	$53,300
Options included	Dest/hdlg, $250; gas guzzler tax, $500
Typical market competition	Audi V8 Quattro, BMW 735i

DIMENSIONS

Wheelbase, in./mm	110.2/2800
Track, f/r, in./mm	58.9/58.5/1497/1485
Length, in./mm	187.2/4755
Width, in./mm	68.5/1740
Height, in./mm	57.1/1451
Ground clearance, in./mm	6.3/160
Manufacturer's curb weight, lb	3615
Weight distribution, f/r, %	57/43
Cargo capacity, cu ft	14.6
Fuel capacity, gal	18.5
Power/weight ratio, lb/hp	20.4

ENGINE

Type	Inline 6, liquid cooled, cast iron block, cast alloy head
Bore x stroke, in./mm	3.48 x 3.16/88.5 x 80.3
Displacement, ci/cc	181/2964
Compression ratio	9.2:1
Valve gear	SOHC, 2 valves/cylinder
Fuel/induction system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	177 @ 5700
Torque, lb/ft @ rpm, SAE net	188 @ 4400
Horsepower/liter	59.7
Redline, rpm	6200
Recommended fuel	Unleaded premium

DRIVELINE

Transmission type	4-speed auto.
Gear ratios	
(1st)	3.87:1
(2nd)	2.25:1
(3rd)	1.44:1
(4th)	1.00:1
Axle ratio	3.07:1
Final drive ratio	3.07:1
Engine rpm, 60 mph in top gear	2700

CHASSIS

Suspension

Front	Struts, lower control arms, coil springs, anti-roll bar
Rear	Multilink, coil springs, anti-roll bar

Steering

Type	Recirculating ball, power assist
Ratio	13.2:1
Turns, lock to lock	2.5
Turning circle, ft	39.9

Brakes

Front, type/dia., in.	Vented discs/11.2
Rear, type/dia., in.	Discs/10.2
Anti-lock	Standard

Wheels and tires

Wheel size, in.	15 x 6.5
Wheel type/material	Cast alloy
Tire size	195/65VR15
Tire mfr. and model	Michelin MXV

INSTRUMENTATION

Instruments	160-mph speedo; 7000-rpm tach; fuel level; oil pressure; coolant temp; economy gauge; clock
Warning lamps	Oil; temp; battery; alternator; brake; radiator; washer; ABS; airbag; check engine; 4Matic

PERFORMANCE AND TEST DATA

Acceleration, sec

0-30 mph	3.5
0-40 mph	4.9
0-50 mph	6.9
0-60 mph	9.2
0-70 mph	12.0
0-80 mph	15.3
Standing quarter mile, sec @ mph	17.0 @ 84.6

Braking, ft

30-0 mph	30
60-0 mph	126

Handling

Lateral acceleration, g	0.76
Speed through 600-ft slalom, mph	59.6

Speedometer error, mph

Indicated	Actual
30	30
40	38
50	49
60	58

Interior noise, dBA

Idling in neutral	45
Steady 60 mph in top gear	63

FUEL ECONOMY

EPA, city/hwy., mpg	17/21
Est. range, city/hwy., miles	315/389

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RANGE ROVERS CONQUER THE COLORADO ROCKIES

by Jack R. Nerad

PHOTOGRAPHY BY GUNNAR CONRAD AND THE AUTHOR

Across the Great Divide

Roughing it has never been my strong suit. Sure, I did my share of camping as a child, including a summer vacation 25 years ago that took my family from our home in Chicago through eastern Canada and the New England states, but although this was an alleged "camping vacation," we only spent five or six nights under the dubious protection of a canvas tent. The rest of the time, my mother and father opted for motels, rightfully reasoning that the accessibility of a bathroom and the comfort of a double bed beat the heck out of a long walk to the outhouse and a night spent balancing uncomfortably on an inflated mattress. No doubt those motels were murder on the family budget, but they were a positive bargain, considering the alternative.

Which is not to say I abhor the idea of camping. In fact, I'm convinced it has definite benefits in developing resolve and character, not unlike a military school or a nasty first wife. Just no more for me, thanks; I've done my time in the woods.

Or at least I thought I had, until an invitation came in the mail from Bill Baker, Range Rover's director of corporate communications. The missive invited me to join some other journalists and Range Rover personnel in what Baker had dubbed the Great Divide Expedition, an attempt to travel along the Continental Divide from the northern border of Colorado to its southern junction with New Mexico. The majority of the designated route was off-road, with pavement sections used only to join the off-road portions. The event was scheduled to take 13 days, but the journalists were to arrive in waves and participate in three- or four-day increments. Certainly, this appeared to be a palatable introduction to off-roading, a pastime that heretofore had held about as much appeal to me as tossing the caber.

Slyly, I checked the enclosed itinerary and discovered that the final leg—Ouray to New Mexico—included just one night of actual under-the-stars camping. The other three nights would be spent in a hotel in Ouray (pronounced You-ray, by the way) and at the late Malcolm Forbes' ranch, so how bad could it be? I phoned Baker, said count me in, and presto-chango, I was on a plane to Denver.

A short drive later, I arrived in Ouray, which calls itself the Switzerland of America, just as the previous wave of the Great Divide Expedition rolled into the Box Canyon Lodge, our digs for the night. Frankly, it was a pretty tired-looking crew, covered with dust and groaning with fatigue. The complement of Range Rovers was equally tired-looking, battered, but unbowed in the motel parking lot. "What have I let myself in for?" I wondered, as I collected my sleeping bag, flashlight, air mattress, and other requisites from the Range Rover folks.

The following morning before the sun rose, I found out, as the group departed Ouray on what was once called the Million Dollar Highway. This is amazing country we were traveling through. In the first place, the Million Dollar Highway was fashioned by lowering men over cliffs, having those men set dynamite charges, and then hauling them up before the charges could go off. Not your typical day at the office. Nor was the driving we were about to embark on.

Soon we turned off the Million Dollar Highway for a grueling uphill climb over what could generously be termed a track. Luckily for me, my driving partner was Malcolm Smith, an off-road driver and motorcycle racer with numerous Baja 1000 victories

RANGE ROVER

to his credit, not to mention a 4th-place finish in the intensely demanding Paris-Dakar Rally. It was almost embarrassing to be at the wheel in such august company, especially given my complete lack of off-road driving experience.

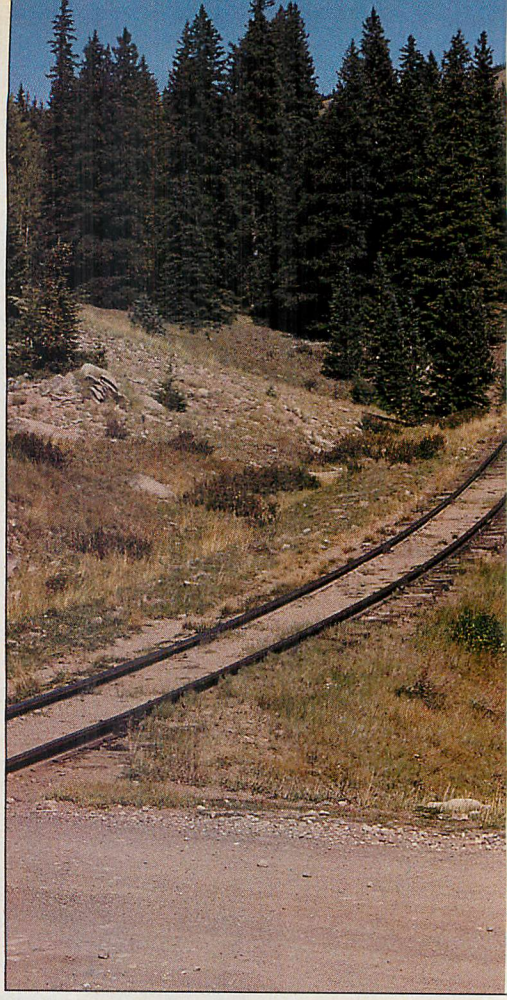
But Malcolm proved a more-than-willing teacher with the perpetually upbeat attitude of a somewhat mischevious grade-schooler. For one thing, our Range Rover always seemed to go faster than the others, despite the go-slow edict you might grasp when you consider that our day's itinerary had us traveling 61.3 miles in seven hours.

When we got to the top of Red Mountain Pass, one of the innumerable abandoned mining districts we were to pass through, Smith just couldn't resist doing a little "ridge-running," which meant vaulting over the side of a sheer drop and then half-jumping, half-falling to the ridge below. Well, I figured, if my co-driver was going to do it, I better do it, too, so I got out of the vehicle and over the cliff I went. Minutes later, I staggered to a stop at the bottom, close at Malcolm's heels, and we hopped on the bumper of an upbound Range Rover to get back to our own vehicle. They say the thin air makes you lightheaded, but I also think it makes you light-brained.

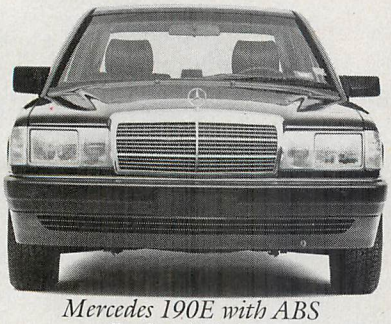
IT DIDN'T TAKE ME LONG TO GET INTO THE OFF-ROADING SPIRIT, AND IT'S A SPIRIT FILLED WITH PLEASURES

Obviously, it didn't take me long to get into the off-roading spirit, and it's a spirit filled with pleasures. If you picture off-roaders to be half-gassed Jeep-jockeys ripping apart the landscape as they toss beer cans to and fro, you've got the wrong idea entirely. The Great Divide Expedition was structured to publicize the National Forest Service's "Tread Lightly" Program, which emphasizes responsible treatment of the natural wonders we were treated to. As the Range Rovers wound their way through the breathtaking scenery, I realized that off-roaders get a chance to see a multitude of things we pavement-bound individuals will never witness.

Among these is Black Bear Pass, one of the most exciting off-road stretches in the world. With a sum-



Why Should The Rich Get All The Brakes?



Mercedes 190E with ABS Brakes, $31,600‡

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mit of 12,840 ft, it bridges the gap between the old mining town of Silverton and its sister city, Telluride, now more famous as a ski destination than it ever was as a mining site. The track down from Black Bear Pass is so narrow and challenges you with such steep dropoffs, it's a wonder anyone thought that vehicles could negotiate the face in the first place. But negotiate it the Range Rovers did, with the calm reserve that speaks of their British heritage. Inch by inch, we trundled past Bridal Veil Falls to an eventual meeting with a cheeseburger in a Telluride ski bar. Telluride was the site of the first bank robbery pulled by Butch Cassidy and the Wild Bunch, an event that took place in 1889. Our rather genteel group of city slickers could have been termed the Mild Bunch in comparison, but we were beginning to settle in as confident off-roaders, helped in no small measure by patient instruction and the Range Rovers' more-than-willing chassis.

That afternoon, we forged our way back toward Ouray on another route that took us past the Tomboy mine and over Imogene Pass, at 13,114 ft, one of the highest we were to cross in our journey. Along the way, while helping an off-roader who had somehow managed to roll his Jeep, we

four wheel independent suspension.

Of course, to many drivers, how fast they go is just as important as how fast they stop. So every Subaru Legacy is powered by a horizontally-opposed (for reduced vibration), aluminum (for more even heat distribution), single overhead cam, multi-point electronic fuel injected, 16 valve engine.

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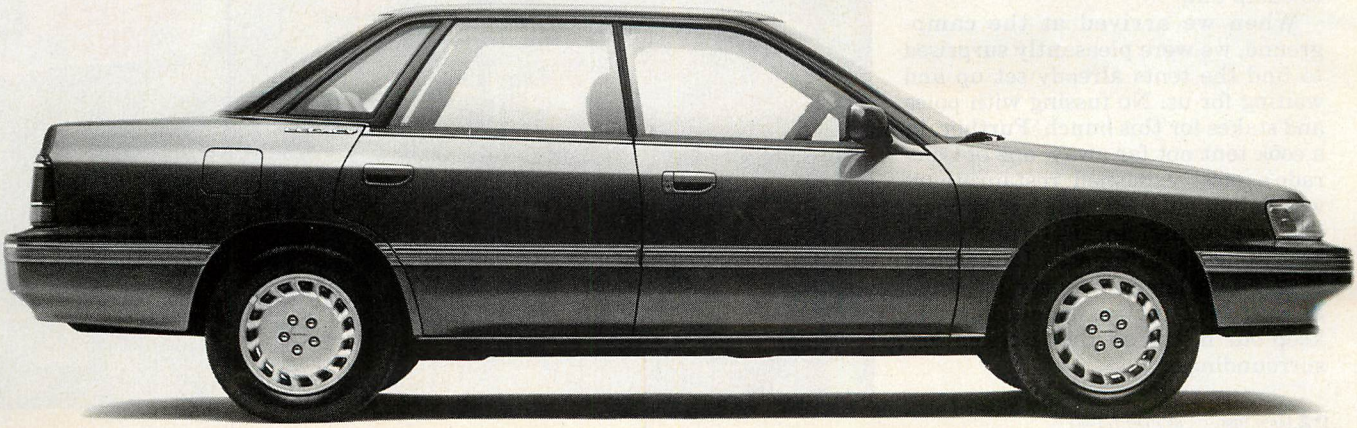


1990 Subaru Legacy with Full Time Four-Wheel Drive and ABS Brakes, from $16,039.†

were passed by a jogger practicing for the annual Telluride-to-Ouray run, which must rank right up there with keelhauling as cruel and unusual punishment.

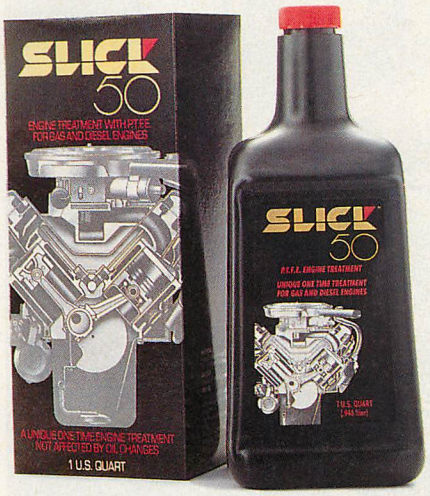
The following day we were back at it on another route out of Ouray, and this time my driving partner was Charlie Hughes, an affable guy whom I first took to be another journalist, but who turned out to be president of Range Rover of North America. Perhaps I could be excused in not expecting the corporate president to be out mixing with us ink-stained types in the wild, but Hughes has become quite a devoted off-roader, and the event promised too much fun to miss.

By mid-morning, after a climb up some boulders as big as Winnebagos, we arrived at Stoney Pass, where we crossed the Continental Divide very near the head waters of the Rio Grande. Thirty miles later we were in Creede, one of the most notorious towns of the Silver Rush era. In an attempt to clean up the vice and crime, citizens called on Bat Masterson to take control in 1890, and he proceeded to put the clamps on most of the lawlessness, while still tolerating gambling and prostitution. (Masterson was obviously a guy with certain priorities.) When bad-man Bob Ford came to town in 1891, crime broke out anew, and things weren't safe for man or beast till Ford was gunned down in 1892. His funeral kicked off a party that continued until the town's liquor supply ran out. The attendees included Masterson, Poker Alice Tubbs, Calamity Jane, and Kilarney Kate, among other notables.

More wondrous scenery awaited us as we cruised between the trees toward Pool Table Mountain. In 1848, John C. Fremont and his men were trapped in the vicinity by a sudden snowstorm and forced to eat their mules and then their saddles (sauteed with a side of sauce Bernaise) before being able to make their way out. No such rigors were in store for us, but this *was* the night we were scheduled to camp out.

When we arrived at the campground, we were pleasantly surprised to find the tents already set up and waiting for us. No fussing with poles and stakes for this bunch. Further, in a cook tent not far away, one of Colorado's most esteemed restaurateurs was doling out cold beer and preparing beef tenderloin. (Eat your heart out, John C. Fremont.) Later that evening, Baker graciously provided us with an attractive female singer to keep our minds off the rudimentary surroundings.

STARTING YOUR ENGINE IS A TERRIBLE THING TO DO.



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The following day was our longest, both in terms of miles driven (214) and hours (10). The day had several highlights. First, my co-driver for the day was Tom Collins, a Camel Trophy off-road driver who put together the route and whose research was of immense benefit in constructing this story. The second came in mid-afternoon when the group reached the Colorado/New Mexico border. In some ways, I felt like an interloper, since I'd only driven the last couple days, but for those who had been with the expedition from the planning stages, it was truly an emotional moment. Finally, dinner that night, the last of the Expedition, was hosted by Kip Forbes, the editor of *Forbes* magazine, at his family's Trinchera Ranch.

THE RANGE ROVERS NEGOTIATED THE TRAILS WITH THE CALM RESERVE THAT SPEAKS OF THEIR BRITISH HERITAGE

The hospitality was particularly warm, the mood festive, and it turned out to be a fitting denouement for a memorable trip.

It was a trip in which the Range Rovers acquitted themselves nobly. No one who drives his Range Rover to the haberdasher or movie studio in Los Angeles can possibly appreciate the charm and utility of the vehicle until he embarks on an off-road expedition like this one. In all the off-road areas we traversed—mountains, streams, log-blocked tracks, and sodden fields—the Range Rovers were truly remarkable vehicles, not just getting us where we wanted to go, but getting us there in comfort and style.

Tent-camping? Well, I can still take it or leave it alone. But another off-road trip in a Range Rover? My bag's packed and I'm ready to go any time. MT

*$4250 Sportster® 883 available in vivid black only. Other colors and California models slightly higher. Price listed is Manufacturer's Suggested Retail Price, excluding taxes, title and registration fees, destination charges and dealer prep (if any), and is subject to change without notice. ©1989 Harley-Davidson, Inc. We support the AMA and recommend you wear a helmet and protective gear, always ride with your lights on, and watch out for the other person while riding.

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ROAD TEST

HONDA CIVIC EX

THE NEW SWEETHEART OF SIGMA CHI

by Bob Nagy

PHOTOGRAPHY BY CHRISTY JEWELL

No one ever went wrong by mixing a sizeable dollop of pure fun into the recipe for a highly practical subcompact family sedan. In fact, this particular kind of "seasoning" is being embraced by an ever-increasing number of manufacturers. Although Honda has previously confined the sporting variants in its Civic family to the likes of the CRX and Hatchback, for 1990, the Sedan line also has been similarly enriched through the addition of an EX model. To help it rise to the competitive moment, this new top-line Civic is bolstered by an extra shot of go-power, along with a handful of other functional improvements.

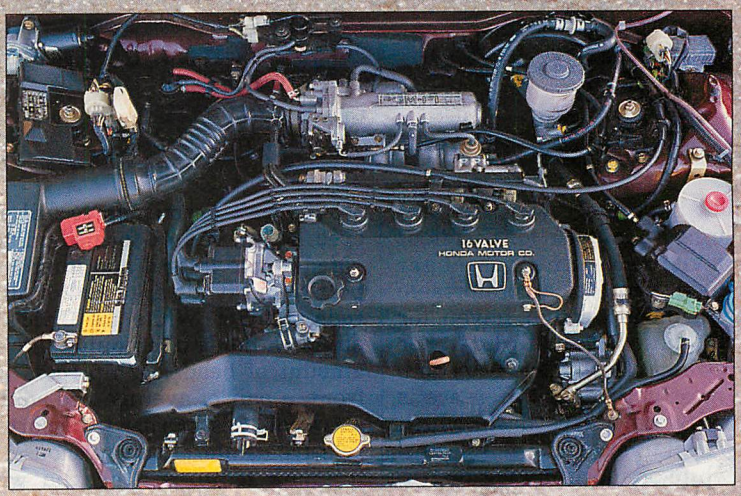
The EX isn't the only Civic to receive a supplemental benefits package. The entire Sedan and Hatchback lineup has been tweaked a tad for the new season. Even though its basic design continues to age fairly gracefully as the Civic enters the third of its four-year generational life cycle, Honda felt it was time for a slightly fresher look. The most obvious changes can be seen in the front and rear fascias, which carry revised bumpers and restyled head and taillamps.

In addition to its more potent powertrain, lifted directly from the CRX Si, the EX's roster of standards includes all the comfort and convenience items found on the LX model. An adjustable steering column, tinted glass, power windows/locks/mirrors, remote trunk and fuel door releases, rear window defroster, childproof rear door locks, and intermittent wipers head the formidable list. But this classy little hauler even adds such thoughtful touches as fully adjustable headrests fore and aft, child safety seat anchor points, and rear seat heater ducts. The EX bases at $11,145, excluding destination fees. Our tester, which also had air conditioning, AM/FM/cassette stereo, and floormats, bottomlined at a reasonable $12,873.

Motivating force for the EX is Honda's familiar 1590cc SOHC four. This 16-valve all-alloy engine is fitted with cast iron cylinder liners for maximum durability. Where the 92-hp 1.5-liter used in the DX and LX is fed by dual-point electronic fuel injection, the EX engine gets full multipoint EFI, helping it make 108 hp at 6000 rpm and 100 lb-ft of torque at 5000 rpm. This lit-

tle screamer will smoothly and swiftly rev to its 6500-rpm redline. While most enthusiastic above 3500 rpm, it's surprisingly responsive at the bottom end and can pull the 0.77:1 overdrive 5th gear from as low as 1500 rpm. Matched with a slick-shifting 5-speed manual gearbox as in our tester, it earns the EX a 28/32-mph city/highway rating from the EPA (choosing the optional 4-speed automatic cuts those figures to 25/29 mpg, respectively). Subjected to a pretty steady diet of spirited flogging, our EX averaged a respectable 27.9 mpg in just over 750 miles of mixed-mode driving.

The EX shares the same basic chassis and suspension components as the DX and LX sedans. These fully independent underpinnings incorporate Honda's modified upper and lower wishbones with a coil spring and gas-pressurized shock at each corner. A 19mm front stabilizer bar serves as an effective fine-tuning device and keeps body roll in check. Brakes remain power-assisted disc/drum, but the EX is fitted with larger, 10.3-in. vented front rotors from the Acura Integra in place of the 9.5-in. units found on the DX/LX models. The 7.1-in. rear drums are common to all three Civic sedans. Rounding out the functional changes is a modest wheel/tire upgrade. While retaining a 5-in.-wide steel rim, the EX wears 175/65HR14 steel-belted radials in place of the DX/LX-spec 175/70R13s. On our tester, these were Bridgestone RE85 M+Ss. There was little to fault about their ability to provide a smooth, quiet ride. Still, we couldn't help but wonder why Honda didn't just go ahead and fit the EX with the same 185/60HR14s and cast alloys used on the CRX Si, or at least offer that combo as an option.



Under its more stately hood, the Civic EX sedan carries the same free-revving 108-hp electronically fuel-injected 1.6-liter SOHC four found in the sporty CRX Si model.

Historically, we've found a lot to like about Honda's approach to interior design. This latest-iteration Civic is no

exception. Extremely well finished with a large greenhouse for excellent outward visibility, the passenger compartment provides a comfortable and ergonomically sound haven for both short- and long-haul duty. For 1990, a few new twists have been added. The most noticeable difference is in the mildly revamped dash, which now carries larger, and even easier-to-read white-on-black analog instruments along with its comprehensive array of warning lights. About the only awkward element is the location of the power mirror control, the switchgear being tucked into the lower part of the dash between the steering column and ventilation system controls. One new "improvement" we could live without is the dreaded motorized shoulder belt system, which has been fitted on both front seats to comply with the latest DOT passive-safety requirements.

Given the Civic's primary role as a people-mover, it's no surprise the EX's standard-issue front bucket seats aren't exactly up to full sport-spec. But these well-formed units provided ample lateral and lumbar support to merit the approval of all who rode in them. While the Civic's rear quarters don't offer quite the same amount of head/leg/hip room as up front, a pair of average-size adults or a trio of kids can be transported in relative comfort. The spacious 12-cu-ft trunk features a decklid with a bumper-level cutout for easy cargo

SECOND OPINION

"Kinda fonda Honda" has been a term I've used for years. My 82-year-old mom drives one at my recommendation, and they just seem to get better.

While it's true the small-car sedan market has become ultra competitive (who can offer the most and still keep the price down), Honda has maintained its position at or near the top across the board.

The new top-of-the-line Civic EX is certainly no exception. Even though short of a couple competitors in horsepower and tire size, the EX is so nicely finished and completely equipped that, unless you're in a dogfight, you hardly notice.

So, if 0-60 isn't the most important thing in your life and you need to haul three adults or four kids in economic style, drive a Civic EX and you may grow "kinda fonda Honda," too.

—Michael Brockman

EXCITING NEW LAB TESTS CONFIRM SLICK 50'S BENEFITS!

Save Gas, Save Engine with 'POLY'

WHAT IS POLY? "Poly" is short for polytetrafluoroethylene (TFE). It is the slipperiest substance known to man. **The 1989 Guinness Book of World Records (pg. 184) says:** *"The lowest coefficient of static and dynamic friction of any solid is 0.02, in the case of Polytetrafluoroethylene - equivalent to wet ice on ice. It was first manufactured in quantity by E.I. duPont in 1943, and is marketed as Teflon™."*

A one quart treatment of Slick 50 will bond slippery "poly" to your engine for a minimum of 50,000 miles. **Unlike some temporary products** on the market, there is no need to add Slick 50 every time you change your oil. By reducing engine friction, Slick 50 increases gas mileage and horsepower and it reduces engine wear, defraying costly overhauls.

Slick 50's credentials are impressive.

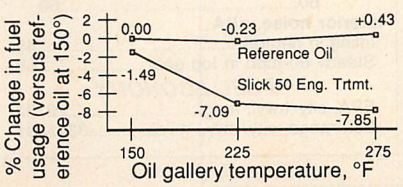
"Slick 50 does reduce engine heat and ordinary wear, and our informal tests indicate that it will improve gas mileage by about two or three miles per gallon...Slick 50 does exactly what PetroLon claims it does." Consumers Digest, (March/April 1982, p.35)

In 1989, the premiere engine and lubricant testing lab in the U.S. tested Slick 50. This EPA recognized lab conducted a strictly controlled experiment using industry standard ASTM procedures. Results showed that Slick 50, compared to a standard reference oil, reduces engine wear **by more than half. Be cautious of those Poly treatments** that cannot back up their claims with such solid evidence.

In a fuel usage test conducted by this same prestigious lab, results showed that Slick 50 (compared to a standard reference oil at 150°) reduced fuel consumption in the test engine significantly at oil temperatures of 225° and 275°. Once warmed up, most cars operate within the range of 225° to 275°.

Especially interesting is the fact that fuel usage with just the reference oil **increased** (see graph) as the oil got hotter than 225°. This is due to the well known fact that oil gets thinner at higher temperatures causing increased friction **(and wear)** in your engine. However with Slick 50, fuel usage actually **decreased** showing that **Slick 50 produces it's greatest friction reducing benefits at higher temperatures which is exactly when your engine needs it the most.**

As with any lab test, these results may not translate exactly the same percentagewise for every engine under every type of driving condition in the "real world". However the conclusion for these test cases is clearly that Slick 50 does reduce engine wear and does increase gas mileage.



The Federal Aviation Administration has fully accepted a similar product - Slick 50 Aircraft Treatment (F.A.R. #33.49).

A test done at the **San Diego State University** revealed that, "Slick 50 does increase horsepower and decreases fuel consumption in tests done at the university". **TUV, a prestigious German testing laboratory,** tested Slick 50 and found substantial increases in both gas mileage and horsepower. The **Space Shuttle Columbia** uses the chemical "Poly" in its gears and bearings because it is the only chemical lubricant which can withstand the heat and corrosive elements of space.

The Cranfield Institute, known worldwide for it's work in tribology (the study of friction) concluded a five year study on Slick 50 in 1989. Results showed that Slick 50 **does indeed coat metal surfaces, dramatically reducing friction and extending the life of the metal.**

Perhaps the most dramatic of all is a torture test seen by thousands of viewers on NBC TV station KPRC. A Lincoln Town Car was treated with Slick 50. During the broadcast, the oil was drained and the car was driven without the oil plug for about half an hour. The water temperature never rose and the engine sustained no apparent damage.

How do you give an engine a "Poly" treatment? Very simply! Change oil and filter and substitute one quart of Slick 50 for the last quart of oil. (Add two quarts for engines with oil capacities of seven quarts or more.) Slick 50 is excellent for all gas and diesel engines (even turbocharged and rotary engines).

Slick 50 will work with all petroleum based oils and synthetics compatible with petroleum based oils.

What are the benefits of Slick 50? By reducing friction, Slick 50 does all of the following: Slick 50 **increases gas mileage.** Slick 50 **increases horsepower** - small economy cars and large RV's really need this! Slick 50 **makes for easier starting** (important in cold weather.) Slick 50 **reduces operating temperatures,** thus increasing the lubrication of your oil and the life of your engine. Since lubricating lead is being removed from gas, and unleaded gas is poor in lubricating qualities, **this extra lubrication of Slick 50 on valve stems and guides is a real bonus.**

Last, but not least, the drastic reduction in engine wear can delay costly overhauls. These can often cost well over $1,000. Slick 50 eliminates the "lubrication starvation" that all cars experience when you first start them, before the oil has a chance to circulate. Up to 90% of engine wear can be caused by this starvation. You receive all these benefits for less than the cost of two tanks of gas ($39.95).

Will Slick 50 harm my engine or affect my warranty? No! The carrier oil for Slick 50 meets, or exceeds, every manufacturer's engine warranty requirements and carries an API service classification SG-CD.

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carting. Utility is further enhanced by the single-piece folding seatback, which can be locked into the upright position for added security.

Hardly intended to be a perpetrator of major macadam mayhem, the Civic EX can more than hold its own among its peers, several of which have the advantage of considerably more powerful engines. During formal track testing, our EX recorded a 0-60-mph time of 9.6 sec and ran the quarter mile in 17.1 sec at 82.5 mph. In decel mode, the EX's easily modulated binders brought it to a halt from 30 mph in 33 ft and from 60 mph in 139 ft. Transient responsiveness was also exemplary. Despite a fair amount of sidewall flex in the EX's ride-oriented tires, this sprightly little 4-door managed to slip through our 600-ft slalom at 61 mph. An even bigger surprise was its impressive 0.82g performance on the skidpad.

The Civic EX proved equally adroit in the real world, exhibiting all the delightful dynamic synergy that's been the longstanding hallmark of Honda automobiles. Suspension tuning is sufficiently taut to ensure good control without exacting a major penalty on ride quality. With 60% of its 2374-lb curb weight on the front wheels, the EX has a natural tendency to understeer at the limit. But the transition from neutrality to a predictable push is relatively benign. Ditto for its reaction to most trailing throttle and braking situations. Although somewhat light, the EX's standard power-assisted rack-and-pinion steering strikes a good balance between feel and responsiveness.

Okay, let's get to the bottom line here: Just how much genuine driving satisfaction does the Civic EX provide? The unequivocal answer: More than enough to make it a serious rival for any competitor on the market today. Other subcompact challengers—and that field has expanded to include a bounty of great players—may hold an advantage in one or two specific areas. But in the total picture, the Civic EX legitimately merits a world-class ranking among the current breed of mini-size super-sedans. Frankly, we hope Honda will go a bit further with the EX program for 1991. A handful of additional horses and more aggressive rubber would turn it into a full-fledged street stormer. But even in this mild-mannered guise, the new Civic EX offers an outstanding alternative for those people who need a small yet spacious sedan that's capable of delivering equal measures of practicality and pleasure. MT

TECH DATA

Honda Civic EX

GENERAL

Make and model	Honda Civic EX
Importer	American Honda Motor Co., Inc., Gardena, Calif.
Body style	4-door, 5-passenger
Drivetrain layout	Front engine, front drive
Base price	$11,145
Price as tested	$12,873
Options included	Air conditioning, $875; AM/FM stereo cassette, $538; floor mats, $55; dest/hdlg, $260
Typical market competition	Nissan Sentra, Toyota Corolla, Ford Escort

DIMENSIONS

Wheelbase, in./mm	98.4/2500
Track, f/r, in./mm	57.1/57.3/1450/1456
Length, in./mm	168.8/4288
Width, in./mm	66.7/1695
Height, in./mm	53.5/1360
Ground clearance, in./mm	4.7/120
Manufacturer's curb weight, lb	2374
Weight distribution, f/r, %	60/40
Cargo capacity, cu ft	12.0
Fuel capacity, gal	11.9
Power/weight ratio, lb/hp	22.0

ENGINE

Type	Inline 4, liquid cooled, cast alloy block and head
Bore x stroke, in./mm	2.95 x 3.54/75.0 x 90.0
Displacement, ci/cc	97/1590
Compression ratio	9.1:1
Valve gear	SOHC, 4 valves/cylinder
Fuel/induction system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	108 @ 6000
Torque, lb/ft @ rpm, SAE net	100 @ 5000
Horsepower/liter	67.9
Redline, rpm	6500
Recommended fuel	Unleaded regular

DRIVELINE

Transmission type	5-speed man.
Gear ratios	
(1st)	3.25:1
(2nd)	1.89:1
(3rd)	1.26:1
(4th)	0.94:1
(5th)	0.77:1
Axle ratio	4.25:1
Final drive ratio	3.27:1
Engine rpm, 60 mph in top gear	3000

CHASSIS

Suspension

Front	Upper and lower control arms, coil springs, anti-roll bar
Rear	Upper and lower control arms, coil springs

Steering

Type	Rack and pinion, power assist
Ratio	17.7:1
Turns, lock to lock	3.9
Turning circle, ft	32.4

Brakes

Front, type/dia., in.	Vented discs/10.3
Rear, type/dia., in.	Drums/7.1
Anti-lock	Not offered

Wheels and tires

Wheel size, in.	14 x 5.0
Wheel type/material	Stamped steel
Tire size	175/65HR14
Tire mfr. and model	Bridgestone RE85

INSTRUMENTATION

Instruments	125-mph speedo; 8000-rpm tach; fuel level; coolant temp; digital clock
Warning lamps	Oil press; batt; check engine; belts; door ajar; trunk open

PERFORMANCE AND TEST DATA

Acceleration, sec

0-30 mph	3.1
0-40 mph	4.9
0-50 mph	6.9
0-60 mph	9.6
0-70 mph	12.8
0-80 mph	16.2
Standing quarter mile, sec @ mph	17.1 @ 82.5

Braking, ft

30-0 mph	33
60-0 mph	139

Handling

Lateral acceleration, g	0.82
Speed through 600-ft slalom, mph	61.0

Speedometer error, mph

Indicated	Actual
30	30
40	40
50	50
60	60

Interior noise, dBA

Idling in neutral	45
Steady 60 mph in top gear	68

FUEL ECONOMY

EPA, city/hwy., mpg	28/32
Est. range, city/hwy., miles	333/381

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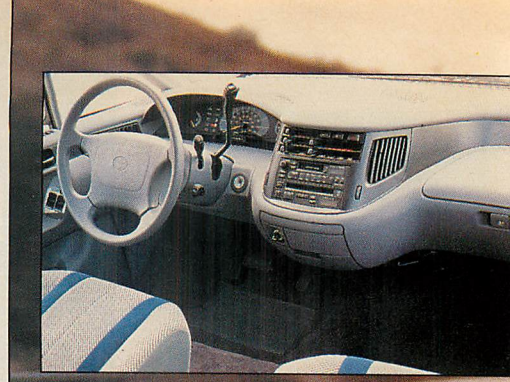
TOYOTA PREVIA ALL-TRAC LE

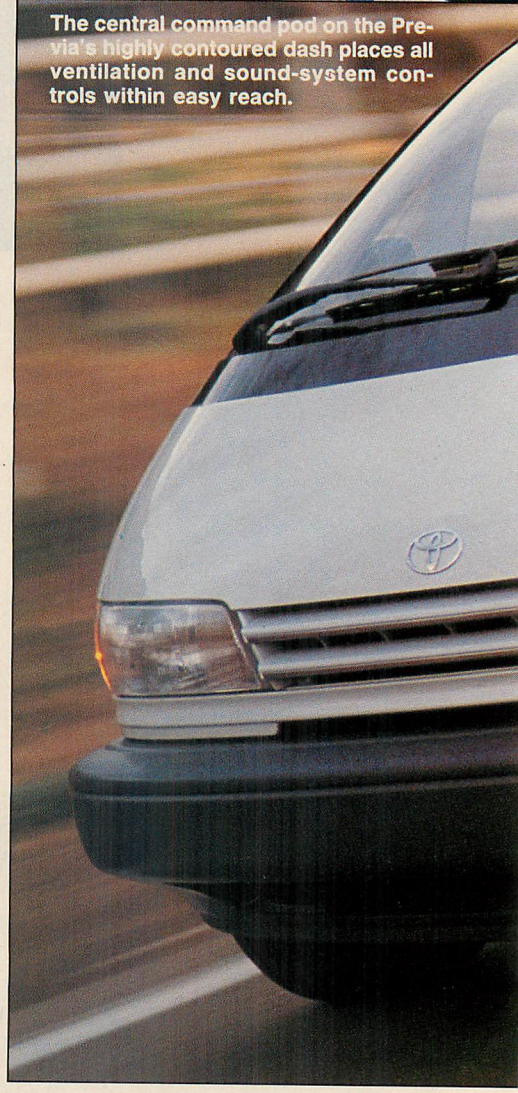
REDEFINING THE COMPACT VAN FOR THE BETTER

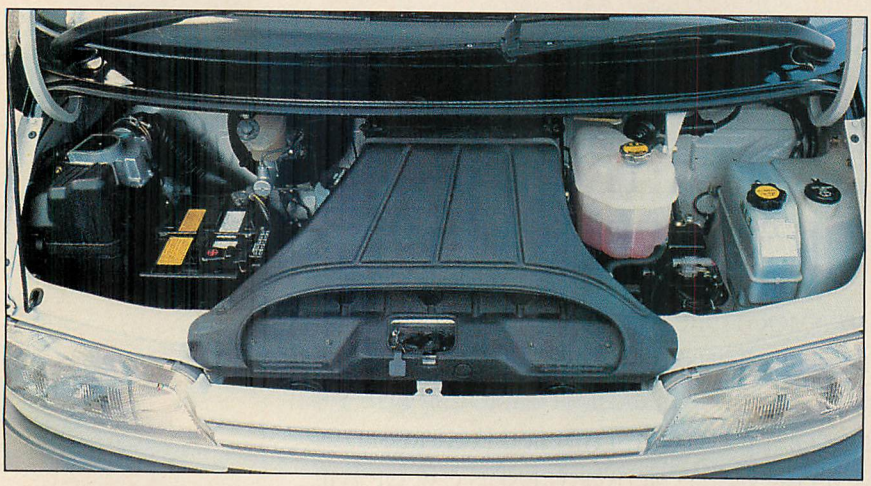
by Don Fuller

PHOTOGRAPHY BY CHRISTY JEWELL



The central command pod on the Previa's highly contoured dash places all ventilation and sound-system controls within easy reach.





Several translucent plastic reservoirs make checking all the Previa's vital fluid levels a snap. One unique feature is a 2-qt replenishment tank that automatically maintains the proper oil level in the mid-ship-mounted 2.4-liter DOHC four.

ROAD TEST

At Toyota's introduction of the Previa compact van, the chief engineer, Mr. Yutaka Ueda, began by saying that the goal was "to separate ourselves from the traditional concept of what a van should be."

That they certainly did.

The Previa looks kind of like a van, like the GM APVs look kind of like a van, but this is a thorough rethinking of what a van is and does. Toyota calls it "a new concept in family vehicles." The objectives included advanced and distinctive styling both outside and in, exceptional space efficiency, sedan-like ride and handling, superior mechanical serviceability, and maximum interior utility.

Talk about meeting goals. Its styling is as modern as the next century. The space efficiency beats a UPS truck. You wouldn't believe the ride and handling. Servicing this thing should be a breeze. And if the interior doesn't offer enough utility, you need something besides a compact van.

The exterior is largely the work of Calty Design Research, Toyota's California design studio, while Toyota in Japan did the final production configuration, keeping extremely close to Calty's concepts. The sleek Previa features flush surfaces and a smooth, unbroken outer skin. And it's clean; Cd is only 0.33, a number most cars haven't yet approached.

All our informal, person-in-the-parking-lot polls added up to a lot of oh-wows! and gee-whizzes! for the Previa's stunning new shape. Around here, we think it's one of the best-looking things to hit the road since the USC cheerleaders were in the Rose Parade.

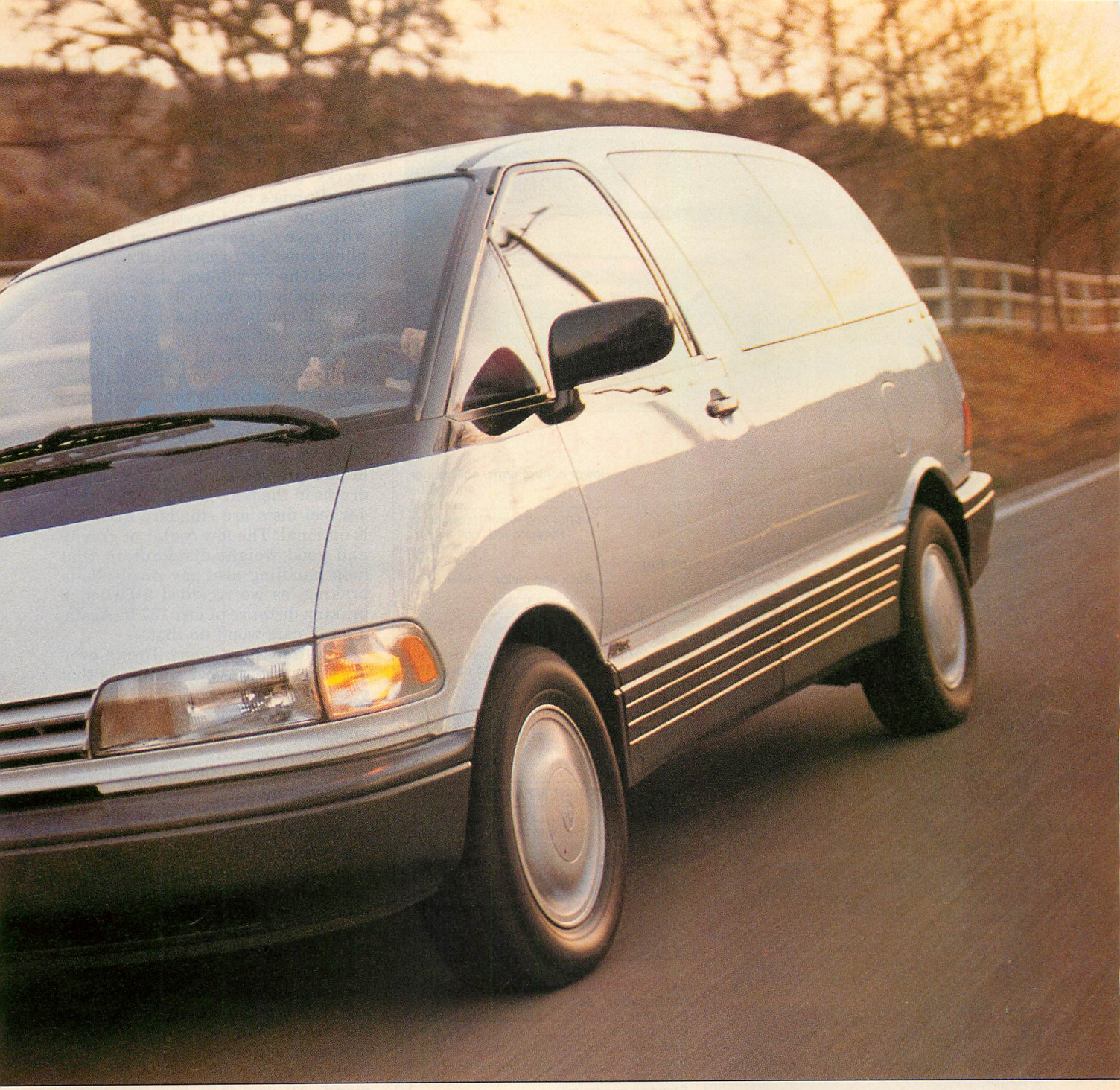
The interior is no slouch, either. Facing the driver is a sweeping, curving, organic flow of forms, instruments, and controls. It's interesting and inviting, modern and friendly. And from an ergonomic standpoint, it works well; the instrumentation is clearly visible and the control functions in the central section are easily reachable.

When it comes to space efficiency, all vans, big to small, have shared a common problem: How do you fill the box with stuff when the engine is already taking up a large part of the box? Toyota's answer: Take the engine out of the box.

This is the Previa's major breakthrough and the secret to its success: a unique powertrain that's ideally suited for the space efficiency and utility requirements of a compact van, and which contributes to its sleek styling and carlike ride and handling qualities, as well.

The engine is inclined 75° from vertical and lies nearly flat underneath the floor between the two front seats. This isn't really a new idea; it's been fairly common on some bus designs for years, but it's unique to this type vehicle. This engine placement allows unrestricted front leg room and complete "walk-through" capability front to back.

The seating options are for five or



seven passengers, and the interior is chock-full of thoughtful details, features, and places to put things. The rear bench seat splits in two, and the halves can be folded up against the sides of the interior. With the center seat removed, the flat floor is big enough for that old favorite, the 4x8 sheet of plywood.

The engine that makes this spacious interior possible is a 2.4-liter inline four with DOHC and 16 valves. Long intake runners and exhaust pipes are tuned for a fat torque curve. It makes 138 hp at 5000 rpm and 154 lb-ft of torque at 4000, and at least 90% of the torque is available from 1200 to 5500 rpm. This 2.4-liter four puts the Previa in nearly the same kind of performance category as other vans with 3-liter V-6s.

Transmission choices are a 5-speed manual or 4-speed automatic. In the standard configuration, the drive is to the rear wheels; this isn't some front-driver that won't pull anything bigger than a camping trailer. In fact, the Previa's trailer-towing capacity is 3500 lb, and it comes from the factory ready to take a hitch.

You can also opt for All-Trac, Toyota's full-time all-wheel drive, as we did on our test model. This includes a viscous limited-slip center differential to send the power to the wheels that can use it best. And being full-time, there are no levers or switches. All you do is get in and drive.

Fast it isn't, but performance isn't a problem, either. Our automatic-equipped All-Trac, fully loaded and therefore about the heaviest iteration possible, knocked off 0-60 mph in 13.6 sec with the quarter mile in 19.5 sec at 72.0 mph.

Except for the seating position, you'll find the Previa rides and handles much like a car. Part of that is due to the chassis, with MacPherson strut front suspension, a well-located 5-link rear axle with coil springs, and

TECH DATA

Toyota Previa All-Trac LE

GENERAL

Make and model	Toyota Previa All-Trac
Importer	Toyota Motor Sales, U.S.A., Torrance, Calif.
Body style	3-door, 7-passenger
Drivetrain layout	Mid engine, all-wheel drive
Base price	$18,000 (est.)
Price as tested	$19,500 (est.)
Options included	Not available
Typical market competition	Chevrolet Lumina APV, Ford Aerostar, Dodge Caravan

DIMENSIONS

Wheelbase, in./mm	112.8/2865
Track, f/r, in./mm	61.7/61.2/1567/1555
Length, in./mm	187.0/4750
Width, in./mm	70.9/1800
Height, in./mm	68.7/1745
Ground clearance, in./mm	7.3/185
Manufacturer's curb weight, lb	3780
Weight distribution, f/r, %	52/48
Cargo capacity, cu ft (max)	157.8
Fuel capacity, gal	20.0
Power/weight ratio, lb/hp	27.4

ENGINE

Type	Inline 4, liquid cooled, cast iron block, cast alloy head
Bore x stroke, in./mm	3.74 x 3.39/95.0 x 86.0
Displacement, ci/cc	149/2438
Compression ratio	9.3:1
Valve gear	DOHC, 4 valves/cylinder
Fuel/induction system	Multipoint EFI
Horsepower, hp @ rpm, SAE net	138 @ 5000
Torque, lb/ft @ rpm, SAE net	154 @ 4000
Horsepower/liter	56.6
Redline, rpm	5800
Recommended fuel	Unleaded regular

DRIVELINE

Transmission type	4-speed auto.
Gear ratios	
(1st)	2.45:1
(2nd)	1.45:1
(3rd)	1.00:1
(4th)	0.73:1
Axle ratio	4.30:1
Final drive ratio	3.14:1
Engine rpm, 60 mph in top gear	2500

CHASSIS

Suspension

Front	MacPherson struts, lower control arms, coil springs, anti-roll bar
Rear	Live axle, upper and lower trailing links, Panhard rod, coil springs, anti-roll bar

Steering

Type	Rack and pinion, power assist
Ratio	18.6:1
Turns, lock to lock	3.5
Turning circle, ft	37.4

Brakes

Front, type/dia., in.	Vented discs/9.7
Rear, type/dia., in.	Vented discs/10.9
Anti-lock	Optional

Wheels and tires

Wheel size, in.	15 x 6.0
Wheel type/material	Cast alloy
Tire size	215/65HR15
Tire mfr. and model	Dunlop SP Sport

INSTRUMENTATION

Instruments	110-mph speedo; fuel level; coolant temp; digital clock
Warning lamps	Oil pressure; battery; oil change; oil level; brake; auto trans oil temp; door open; ABS; low fuel; check engine; belts

PERFORMANCE AND TEST DATA

Acceleration, sec

0-30 mph	4.5
0-40 mph	6.6
0-50 mph	9.8
0-60 mph	13.6
0-70 mph	18.8
Standing quarter mile, sec @ mph	19.5 @ 72.0

Braking, ft

30-0 mph	33
60-0 mph	137

Handling

Lateral acceleration, g	0.73
Speed through 600-ft slalom, mph	57.3

Speedometer error, mph

Indicated	Actual
30	28
40	38
50	48
60	56

Interior noise, dBA

Idling in neutral	47
Steady 60 mph in top gear	67

FUEL ECONOMY

EPA, city/hwy., mpg	17/22 (est.)
Est. range, city/hwy., miles	340/440 (est.)

anti-roll bars front and rear. But a large part of the credit also goes to the engine layout; this is a mid-engine vehicle with a low center of gravity, and its front-to-rear weight distribution is a near-even 52/48%. What works with cars, works with vans. The Previa's ride motions are devoid of the pitching and jostling associated with many other vans, and its handling must be experienced to be believed. On our skidpad, it generated a respectable (for vans) 0.73g cornering force. It can be hustled down a winding road with amazing vigor, and its response and overall capability is superior to some sedans. Big domestic models in particular must work hard to stay with it.

On the Deluxe model (Toyota's cleverly named base version), the brakes are vented discs in front and drums in the rear. On the upscale LE, 4-wheel discs are standard and ABS is optional. The low center of gravity and good weight distribution that help handling also pay dividends in braking, as we recorded a 60-0-mph braking distance of just 137 ft. Again, a lot of cars won't do that.

The first thing many Toyota owners know about serviceability is that you don't have to do much. The Previa goes even further. With the engine under the floor, many common service procedures and checkups might have been difficult. So Toyota engineers mounted the engine accessories, including the cooling fan, air-conditioner compressor, power-steering pump, and alternator, in the front. This contributes to the low engine height and places those things more commonly serviced where they're easier to reach. Being several feet in front of the engine, they're driven by their own driveshaft. Other services, such as checking and replacing fluids, are also performed from the front. There's even a front-mounted engine oil reservoir that feeds the engine automatically, on demand. All you do is keep the reservoir topped up, and it's clear so you can check it visually without getting dirty. Nifty, huh?

At the time this was written, the Toyota people were only offering estimates about prices. The lowest priced version will be around $13,000 and the LE version about $18,000. The All-Trac option will cost about another $1500.

By redefining the compact van, the Previa leaves you looking for the right definition. Is it the most space-efficient van, or the roomiest family sedan? Is it the best-handling van, or the only sports car that can carry a 4x8 sheet of plywood? MT

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ROCKET OLDSMOBILE

THE SEQUEL

by Don Fuller

Stand on the gas long enough, and you reach a kind of finality in the struggle for really high speed. Horsepower and aerodynamic drag come to a literal standoff; neither will budge another inch. The engine and the air lean on each other like a pair of sumo wrestlers; mighty forces, but no further advancement in either direction. It's as violent as sleeping, as peaceful as war.

At 200-plus mph across the Salt Flats, if the car is working well, it can be almost dreamlike. Your concentration is focused to the sharpness of a samurai's killing sword, and nothing else intrudes. Just keep it on track, keep it in one piece, and keep the throttle open. You push the gas pedal so hard your right leg might ache for a week afterward. You try to fuse your nerve endings into the car's metal to pick up even the tiniest signal of impending doom. If the car is working well, it can, in retrospect, seem to have been a fairly easy deal. But you're covering ground at the rate of about one length of a football field every second, and you have the feeling that, if something does go wrong, a lot of things are going to start happening in a real big hurry.

Last year, with Jim Feuling of the weird science and ungodly horsepower fame, we took an Oldsmobile Cutlass Calais to Bonneville and went looking for records and 200 mph. There were no records, but the Calais had shown its potential with a single run over 211. The magical 200 mph, and a record, not to mention fame and glory, seemed within reach.

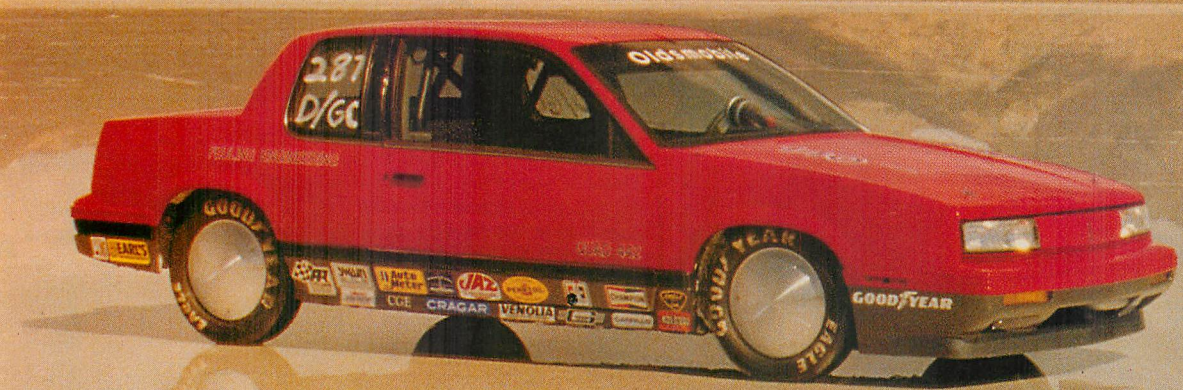
Feuling wanted to give things another try.

So did we.

And so, for the Third Annual World of Speed, conducted by the Utah Salt Flats Racing Association, Editorial Director Len Emanuelson (who had already been in the Bonneville record book) and I would both have rides capable of topping 200 mph. What's not to like?

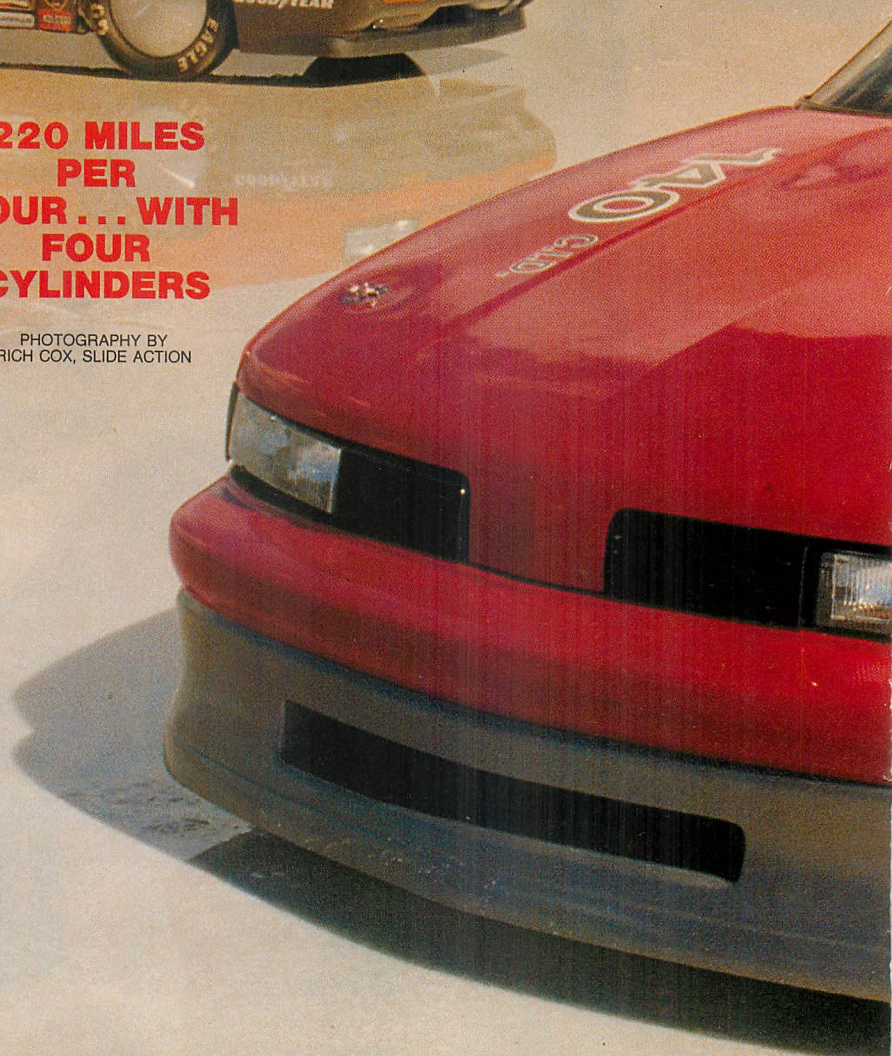
Len's ride was last year's Cutlass Calais, repainted bright red and ready to run again. Jim had assigned me to a new Cutlass Supreme, a close mechanical twin to the Calais.

Both these monsters in sheep's clothing were powered by Olds Quad 4 engines that had been considerably breathed upon by Jim and his merry band of crazies. They were based on stock blocks and heads and had production electronic engine management, ignition, and fuel-injection systems.



220 MILES PER HOUR . . . WITH FOUR CYLINDERS

PHOTOGRAPHY BY RICH COX, SLIDE ACTION



From there, everything else in these 2.3-liter turbocharged, intercooled engines pretty much took off in directions known clearly only to those who live in the cosmos or who labor in Feuling's madcap skunkworks. These included his weirdo two-lobe "Pulse" cams, the strange "Anti-Reversionary" exhausts, the slicko hydrophobic lyophillic coatings, and all kinds of other strange things—with Feuling, who really knows?

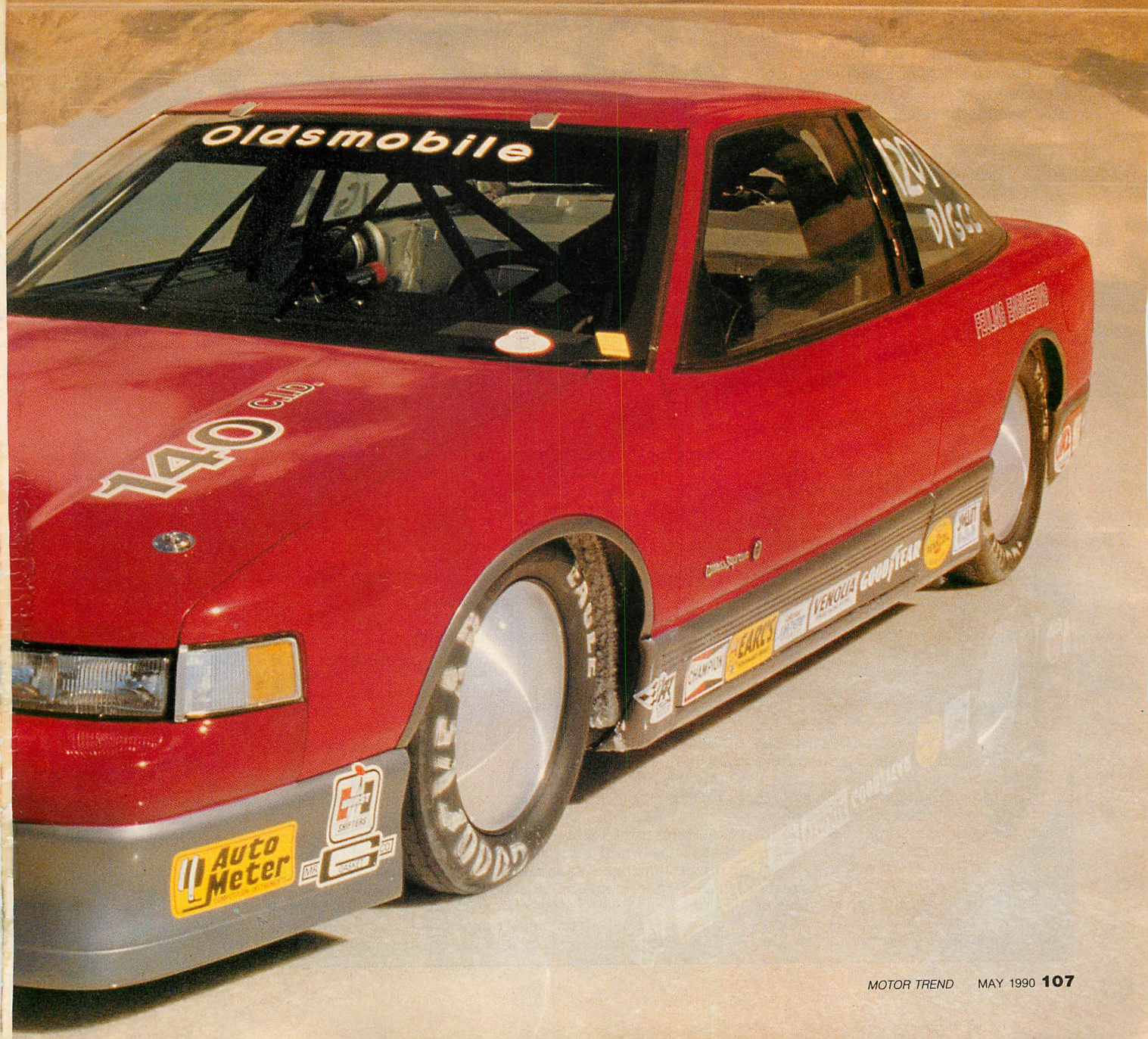
Due to available underhood space, the Cutlass Supreme's engine had a more advantageous turbo arrangement. But in any case, the horsepower numbers were astounding: Feuling figured around 550 for the Calais, and the Cutlass Supreme grizzly rattled the dyno for an eye-popping 607 on the happypower meter.

Pretty much, the rest of these two cars was as GM built them. Stock 5-speed transaxles, final drives, and driveshafts. The interiors were gutted, rollcages and safety gear installed, mirrors and wipers removed, and a few little things changed here and there. But these cars were so production, the power window motors were still in the doors.

There was also a lot of help from companies like Autometer, which custom-built special tachs to work with the Olds ignition signal, Carl Green Enterprises, Goodyear tires, Champion spark plugs, Pennzoil, Venolia pistons, Swain coatings, Wilwood brakes, Jaz safety products, and the Mr. Gasket companies, including Hurst.

In addition to the two hot-rods, we had a production Cutlass Supreme 4-door with Quad 4 H.O. and 5-speed, which we figured might make something over 120. Finally, there was the monster: an ex-NASCAR chassis, covered in bodywork approximating the form of a drastically lowered Cutlass Supreme, powered by Feuling's fearsome "BE" Quad 4 engine, a 2-liter with roughly as much power as a Saturn booster. The goal for this beast was to be the first production-bodied car over 300 mph. Jim is not shy about setting goals.

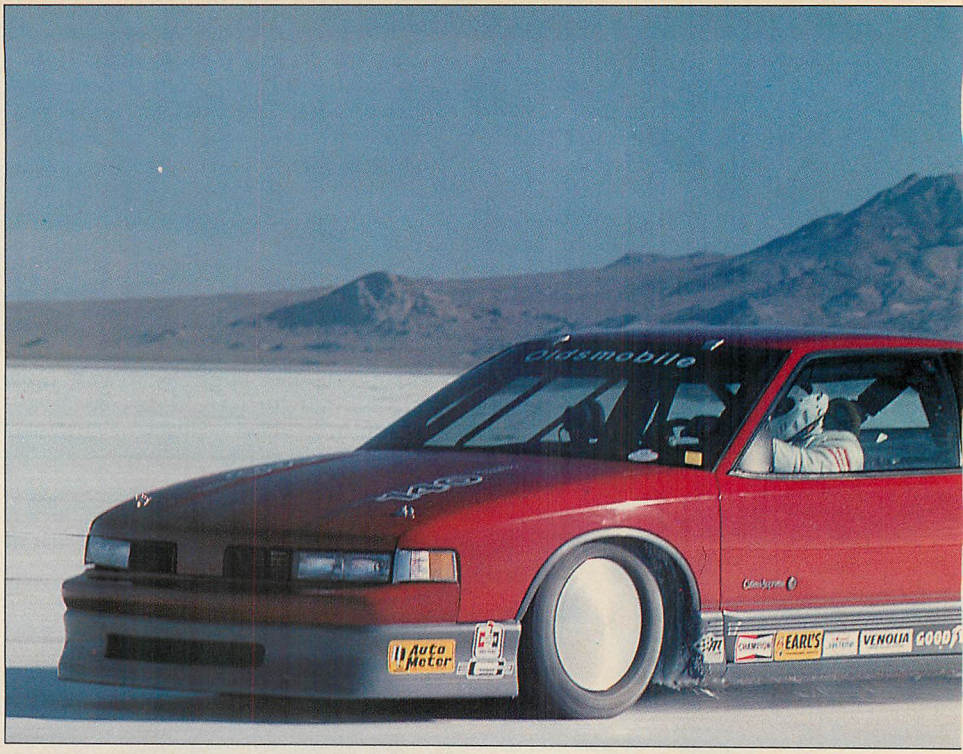
Feuling and the guys, Rocky, Gene, Steve, Dick, Jack, Bill, the inimitable E.T., and Carl Green and his son, had been joined by four Oldsmobile engineers. Olds engineering motorsports chief Bill Porterfield had brought



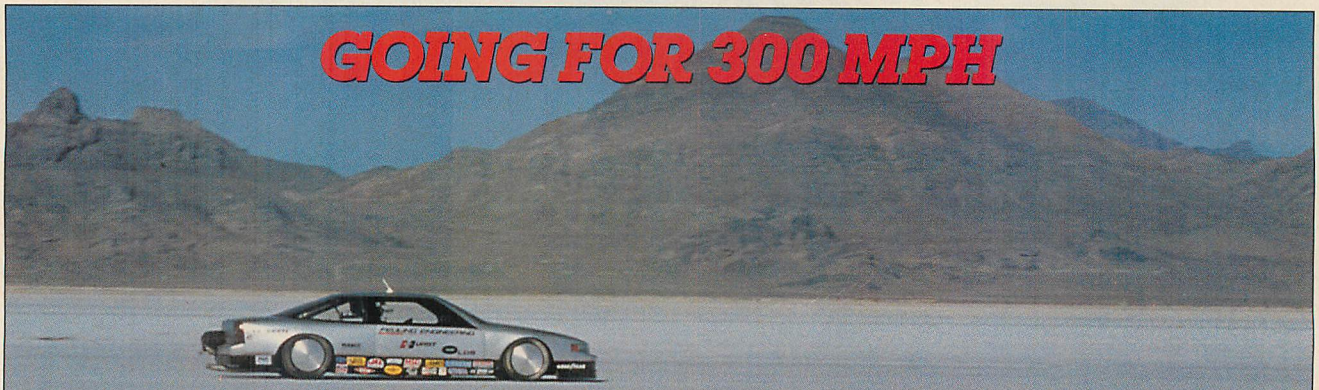
Craig Kemler, Mike Costello, and Scott Violetta to watch over the electronics systems. The Calais and Supreme had full data acquisition capability, and the Olds guys could also program chips, on the spot, to tune the ignition and fuel systems.

Friday began with Feuling and Oldsmobile making a donation of a Cutlass Supreme to the auto shop class at the local high school in Wendover. But when it came time to run the cars, an evil wind was blowing fiercely across the salt and there was nothing to do but pack up and ride out the storm in the tranquil, heartwarming peace of the Wendover casinos. This had the usual depleting effect on our wallets.

Saturday was only marginally better. Len started off in the Calais and was hard on the gas when it popped out of gear. He saved it with no harm done, but it was back to the end of the growing waiting line. The Supreme had its own share of anticipated problems; mainly, would its smallish radiator be able to reject the heat of 600-



GOING FOR 300 MPH



Jim Feuling's monster Olds Cutlass Supreme was built around a simple goal: to be the first production-bodied car over 300 mph.

This testament to the limits of automotive sanity began as an ex-NASCAR stocker, which Feuling bought minus the powertrain. He gave it Cutlass Supreme bodywork, lowered considerably. The engine is the fearsome 2-liter DOHC 4-cylinder 16-valve "BE" Quad 4 he developed, from scratch, for the record-setting Olds Aerotech research car. It has a 5-speed gearbox and a NASCAR rearend. To get the stupendous horsepower to the salt, the rear axle is fitted with four wheels, like a truck. Feuling describes this as 4-wheel drive. To eliminate any radiator openings and thus clean up the aerodynamics, the cooling systems for both the engine and the intercooler are carried in big tanks.

A few weeks before loading up for Bonneville, Feuling and I were in the Ventura shop of Carl Green, one of those artists of the Southern California automotive underground who can make anything out of anything. Green had done the bulk of the conversion work in turning the beast from a NASCAR stocker into a Bonneville-sleek Supreme, and Jim and I stood looking at the ferocious BE engine as Green and his crew were fabricating the intake ducts.

"So, Jim," I asked, "how much horsepower we talking about here?"

"Oh, it's adjustable from 'bout 1200 up."

"How high is up?"

"Ummm, depending on boost, 'bout 1500."

From two liters and four cylinders, 'bout 1500 hp. Feuling sometimes calls this insane BE engine "the little guy," as in, "you gotta watch out; the little guy, he can hurt you."

At Bonneville, the car had several teething problems. One of the first was simply getting it classified. Early on, it had been determined to meet the requirements of a class of cars known as "Competition Coupes." But once on the salt, tech inspection somehow came under the domain of another entrant who just happened—coincidentally, you understand—to own and operate a "Competition Coupe" of his own. Well, now. The scene didn't get any nicer when the inspector's "Competition Coupe" was even more of a flagrant violator of the somewhat poorly written rulebook than was Feuling's immaculately constructed Olds lookalike.

Even after wading through provincialism's messy swamp, the going was not easy. At speed, the car displayed a disturbing lack of directional stability. A month later, Feuling took the car back to the salt. It was thought the stability problem might be traceable to the tires, and another driver was invited to try to figure it out. But he missed a shift and hurt the engine, so that was that.

So far, the beast has been in the neighborhood of 240 or so, and barely into the meaty part of the little guy's power curve. Most certainly, 300 is a possible deal, if not an easy one. Just as certainly, the little guy has the muscle to do it. *—Don Fuller*

plus hp. It was well into Saturday before I got to the head of the line, and E.T. buckled me in with a warning to watch the temperature gauge.

Right away, the temperature was trouble. The beginning of the timing lights, at the five-mile mark of the 11-mile course, came just as the temperature needle crawled past 225°, and I switched it off. It coasted through the measured mile, with the engine shut off, at an average of slightly over 188 mph. We figured it would be faster still with the engine running.

To keep from losing a position, we put the car right back into the waiting line, which becomes a long, slowly moving, open-air race car shop. As we moved the car along, Carl changed the radiator ducting, and Steve, having discovered a failed turbo bearing, built another turbocharger from parts and pieces.

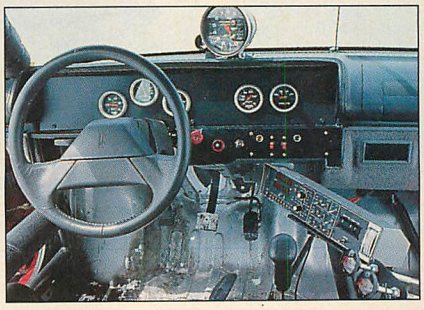
The rest of our team wasn't doing so well, either. The engine in the ex-NASCAR monster that had worked so beautifully on the dyno was turning disagreeable on the salt. The 4-door had its own fate. As a representative of the sponsoring Mr. Gasket and Hurst, the one-and-only Linda Vaughn had brought her considerable charms to the proceedings. Jim, finding there was no existing FIA record for the 4-door's international classification, promptly signed up the lovely Linda as the sedan's driver. Any two-way average speed at all would put her and the car into the record book. But on her first pass through the lights, the previously abused clutch gave out, through no fault on her part, and the 4-door became a non-player.

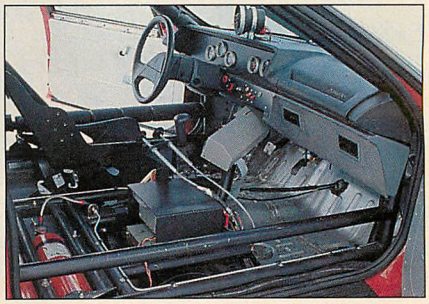
The evil wind came back, and we beat another retreat to the casinos. Jim and Len went after the blackjack tables at full throttle. This strategy had the predicted results and led to more sad stories of gambling over-revs.

With broken cars and bad weather on the salt, and no success on the gaming tables, things weren't looking very good. Except, of course, for Linda, who had her usual, stunning effect on the casino's suddenly wide-eyed population.

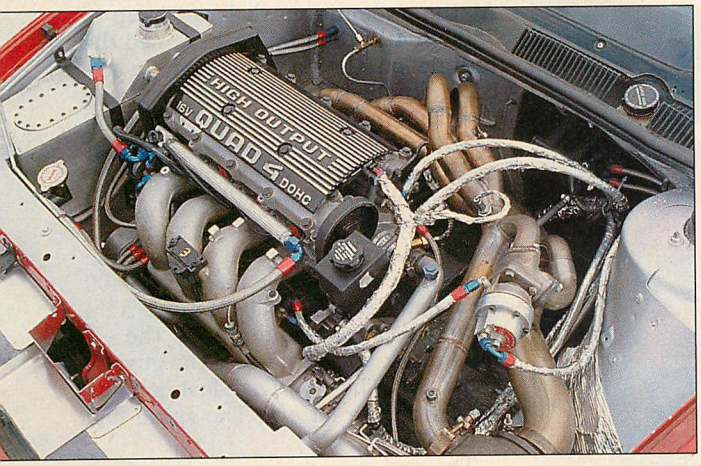
By Sunday, things were getting grim. Len was hard on the gas in the Calais when, at about 7400 rpm in 4th, a CV joint let go entirely. He got out of the gas in time to keep the tach's telltale from going over 7800 and saved the engine. The crew breathed a big round of thanks, but the driveline was history, and Len joined Jim and Linda on the sidelines.

That left the Supreme and me, a match of dubious value upon which to hang hopes if ever there was one.





The Cutlass Supreme's office: a businesslike place for a 200-mph ride across the Bonneville Salt Flats. The Oldsmobile data acquisition gear replaces the passenger seat, and its display panel angles up at the driver.



Here's one of the most ferocious stock-block engines ever seen: 2.3 liters and 607 hp.

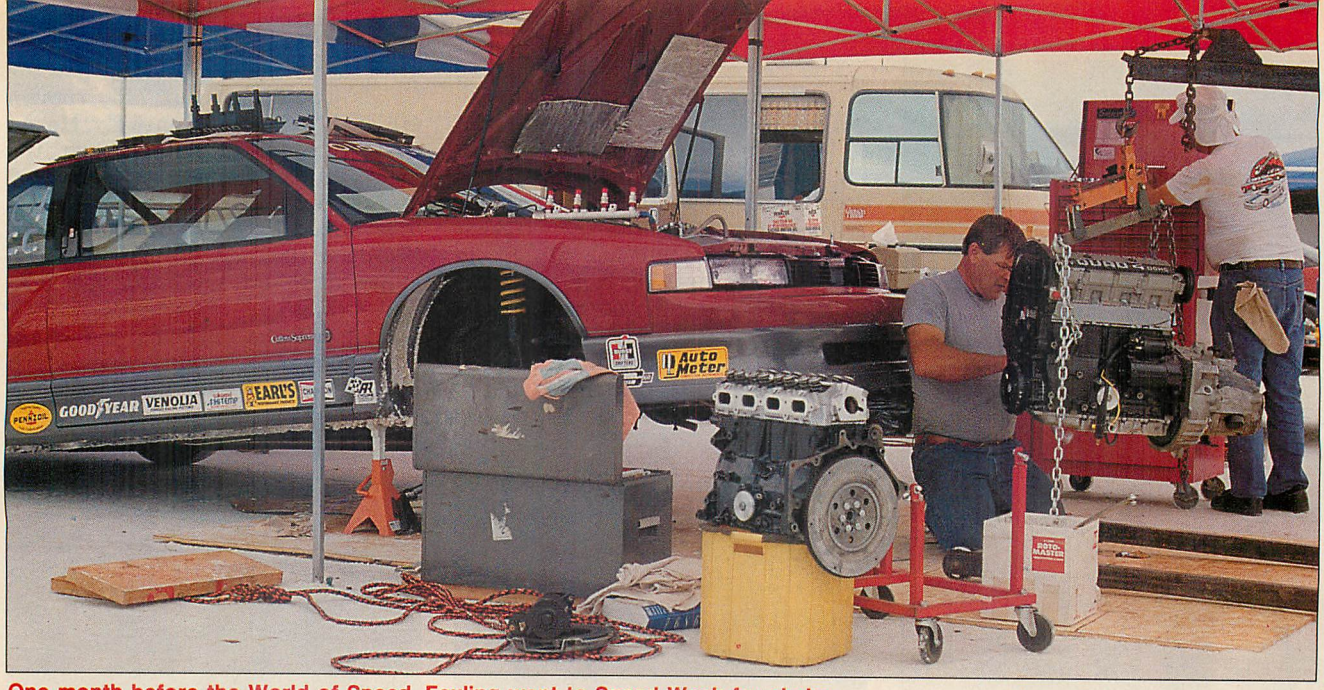
Away I went, watching the temperature gauge like it was only the most important thing in the world, which, at that time and for that crew, it probably was. The revised ducting was doing its job, and I was about to run up the speed when the oil pressure light lit up like a rock video. Instantly I switched it off and coasted off course, while making several observations not at all appropriate for repeating in a publication distributed to school libraries.

Inspection revealed a too-large orifice in the oil line to the rapidly assembled turbocharger, and the engine was okay. E.T. and Steve made up a new orifice based on educated guesses and Kentucky windage, and we went back to waiting for our next turn.

By late Sunday afternoon, we were down to our last car and bad weather was on the way. The crew had run out of grins and practical jokes. The biggest excitement was from Lamborghini Countach owner Al Bertoni cooking up a batch of his high-powered Italian bomb sausages.

Finally, it was our turn again. If the temperature didn't go up, and if the oil pressure fix worked, and if the driveline, which was identical to the busted one in the Calais, didn't break, this should be a piece of cake. The existing record in the class, D Fuel Coupe, was 204.791 mph. Piece of cake.

Fortunately, the Supreme had the directional stability of a locomotive. This left a little time to watch the



One month before the World of Speed, Feuling went to Speed Week for shakedown runs. Things shook down, and the Supreme required mechanical TLC. A month later, it set two records over 200 mph in one 24-hour period.

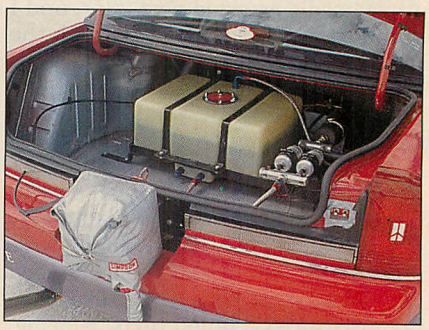
The Supreme presented a cleanly aerodynamic nose to the forces of the wind. By the time the records were set, the right-side headlight had become the turbocharger intake opening, but the rest is production Oldsmobile.

The people who made it happen. Feuling (third from left), wife Claire, and the rest of the crew. Lots of hard work, long hours, and some seriously swacko personalities are the key ingredients in high-speed record attempts.

other stuff, so I let the car kind of find its own way. I got it into 4th, let it cruise at 6300 rpm, where it ran easy at about 140 or so, building up the temperatures to operating levels. At the two-mile mark I ran it up to 7500 in 4th, then into 5th, zeroed the telltale on the tach, wound up the boost knob, then went back to my death grip on the shift lever and death watch on the gauges. That left one hand on the wheel, part of one eye watching where we were going, and the right foot mashing the gas.

The Supreme pounded through the measured mile at an indicated 7400 rpm; enough to beat 204. I drove it on down to the impound area at the 11-mile mark and waited for the guys to show up. They arrived looking like we'd won the lottery. The speed had been 211.367.

The sun was setting in the windshield and glaring off the salt, the windstorms had knocked over most of the course markers, and I had never before seen Bonneville from the return direction. I cleaned the windshield and put up some tape as a sunshade. There was a little bit of a tailwind, and I was hoping for any help



The equipment of safe superspeed. A small fuel cell in the trunk and a parachute outside.

we could get.

Into the setting sun the Supreme wailed through the measured mile on its return run at an indicated 7500 in 5th. The speed was 215.517. That made a two-way average of 213.442. It also made a new record.

I hadn't been out of the car five minutes before Gordon Hoyt gave me the treasured cap, T-shirt, and induction into the Bonneville 200-MPH Club. Short on formality, maybe, but real, real big on exclusivity.

We went back to the casinos, attacked the blackjack tables with a renewed vengeance, and won some money. Things were looking up.

Monday morning, a search through the rulebook showed the Supreme could be entered in another class. Steve and E.T. installed a bigger turbo, the nose was taped up a little to help the aerodynamics, and the car was now in D Altered. I had my record, so this ride was Len's. The existing record was 215.539 mph.

He came along really hammering it, but the first pass wasn't fast enough. Time was running out and the coming storm was looking mean.

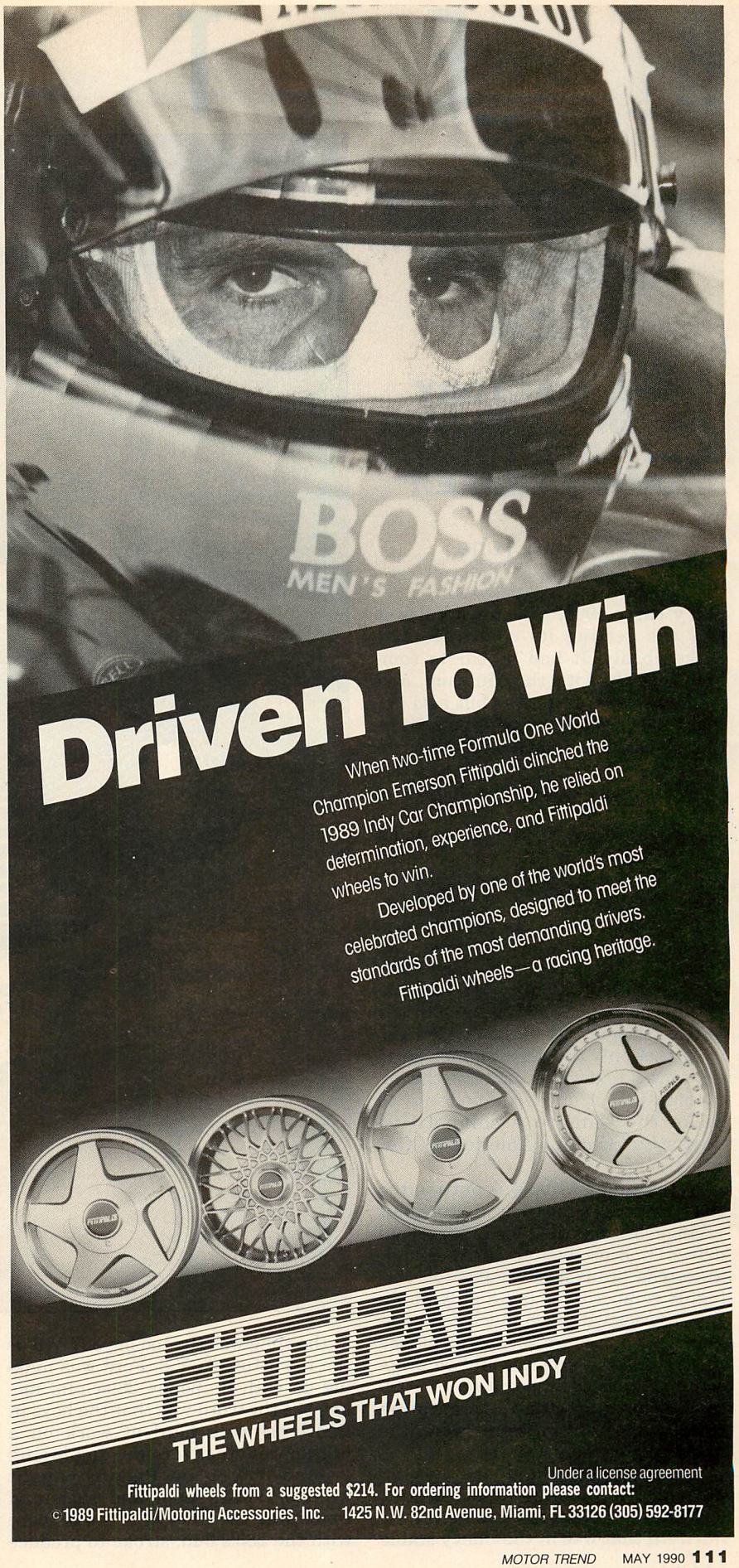
Back in line, the Olds guys played with the chips and programmed in some more spark advance. Some of us went down the course to watch.

What you see first is a salt cloud that grows up over the distant horizon. As it gets bigger and closer, a tiny, dark speck appears to be leading it. The speck turns into a car, trailing a streaming plume of salt spray in its wake. Len and the Supreme come ripping into sight, the engine howling, pulling a roostertail of salt several hundred yards long. The speed was 221.022; over the record.

In impound, Len had the same silly grin I had been caught with the day before. Topping 200 mph does that. On the return, with another goodwill tailwind, Len and the Supreme screamed through the mile at 222.305 mph. The two-way average was 221.663. It was the car's second record in 24 hours. And Gordon Hoyt added one more member to the 200-MPH Club.

For the record, Feuling's Oldsmobile Cutlass Supreme is the world's fastest front-drive 4-cylinder production-bodied car. I was the first to set a record with such a device over 200 mph, Len is the fastest, and *Motor Trend* is the only magazine with two guys in the 200-MPH Club. Fame and glory, not to mention endorsements for everything from underwear to soda pop, are surely just around the corner.

From here on out, you'll have to go through our agent. MT



'69 CHEVROLET CAMARO Z28

THE "FACTORY RACER" AVAILABLE AT YOUR LOCAL CHEVY DEALER

by C. Van Tune

PHOTOGRAPHY BY SCOTT DAROUGH

By early 1966, Chevrolet knew it was getting its corporate tail kicked badly. It had no car to compete directly with the Mustang, and was losing not only sales but also image in the ever-growing "youth market." And although the new Camaro was due to go on sale in a few months, it still seemed a terribly long way away.

So when Vince Piggins circulated a memo concerning the race-oriented performance upgrades he felt the Camaro should have, Chevrolet listened. Piggins was the product promotion manager at Chevy and had been a company engineer since 1956, so he knew his way around a fast machine. His Aug. 17, 1966, memo to a few key people within the division detailed not only the performance parts he wanted to develop, but also the homologation of such components to make the Camaro a competitive Sports Car Club of America (SCCA) racer.

At the time, SCCA was putting the final touches on a new 5-liter-limit racing class designed for professional drivers and production-based sedans, known as Trans-Am. Piggins felt this highly competitive (and highly publicized) series would do much to quickly establish Camaro as a performance car—provided the cars could be properly modified. Homologation of 1000 production units and a maximum wheelbase of 116 in. were two of the many requirements.

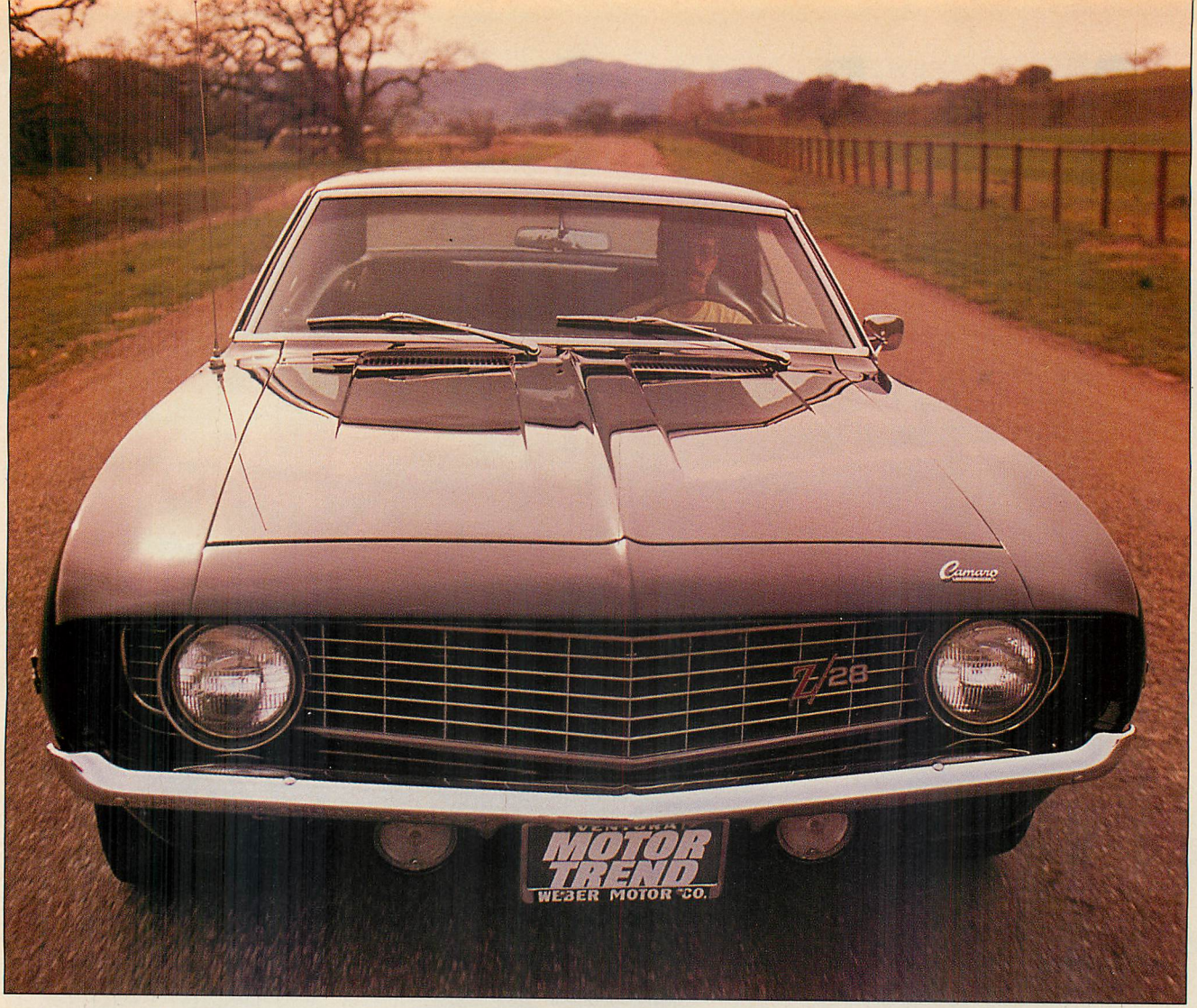
The limit on wheelbase was no problem for the Camaro (at 108 in.), but the cap on engine size definitely hurt. All that was in the Chevy stable at the time was the too-big 327 V-8 or the too-little 283 V-8. Ford was making do with its peppy 289-cu-in. motor, but the word was that the boys in Dearborn were hard at work on a higher-revving version displacing around 300 cu in. Piggins caught wind of Ford's plan and suggested combining the Chevy 327's 4-in. bore with the 283's 3-in. stroke to produce the perfect 5-liter performance engine, all 302 cubes worth.

Actually, the decision on the car's powerplant came somewhat after the first prototype of the hi-po Camaro was built. At that point (October 1966), Piggins had put together a 283-powered Camaro with heavy-duty suspension, faster steering gear, front disc/rear drum brakes with metallic

linings, an 11-in. clutch from the 396 V-8, and a close-ratio Muncie M21 4-speed. The hybrid car also sported Corvette 15x6-in. wheels and an experimental hood with functional scoops. One of the first people in the car was Pete Estes, Chevy's general manager. Piggins grabbed the passenger seat and hung on. After just a couple laps, Estes was convinced. He told engineers Alex Mair and Don MacPherson to build a prototype with Piggins' 302 engine.

The now-famous option code was, of course, Z28. And although some people might think the designation is in homage to legendary Corvette engineer Zora Arkus-Duntov, in reality, it was merely the next step after Z27, the Camaro Super Sport option package. Sorry, Zora.

If anyone rightfully could be called the "father of the Camaro," it would be Vince Piggins. He kicked the Z28 project into high gear after Estes' test drive and, little more than a month later, had a fully prepared Camaro Z28 on display at Riverside International Raceway. Painted light cream with a pair of big, black stripes on the



hood and trunklid, the Z28 took on a purposeful, performance look.

Under the hood was a 302 V-8 with 11.0:1 compression, mechanical lifters, tuned-runner intake manifold, angle-plug cylinder heads with big 2.02-in. intake valves, high-output ignition, and a mammoth 800cfm Holley 4-bbl carb. Power was rated at 290 hp at 5800 rpm and 290 lb-ft of torque at 4200 rpm (both figures purposely underrated by about 20%). In stock trim, it would turn 0-60 mph in 7.4 sec and the quarter mile in 14.8 sec at close to 100 mph. Top speed was 130 mph.

A Chevrolet press release detailed the car's heavy-duty springs and shocks, rear axle radius rod, 3.73 axle ratio, four-on-the-floor, and power front disc brakes. Also mentioned were the six available axle ratios from 3.08 to 4.88 plus the heavy-duty brake linings and other Trans-Am-destined equipment. The display Camaro also wore a rear spoiler and black vinyl top.

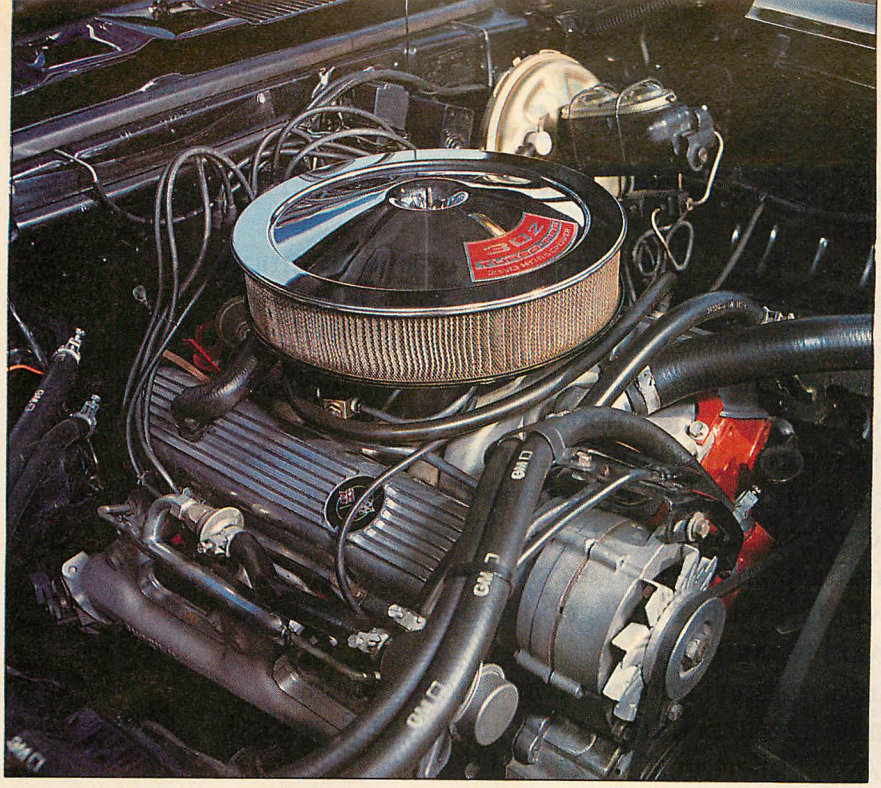
But the landau roof treatment was fooling no one. Even though the Automobile Manufacturers Association ban on factory involvement in racing (of which General Motors was a part) had not been lifted, several racers could see what Chevy had in mind and began trying to order what they thought was a Camaro Trans-Am kit car. One racer was Roger Penske.

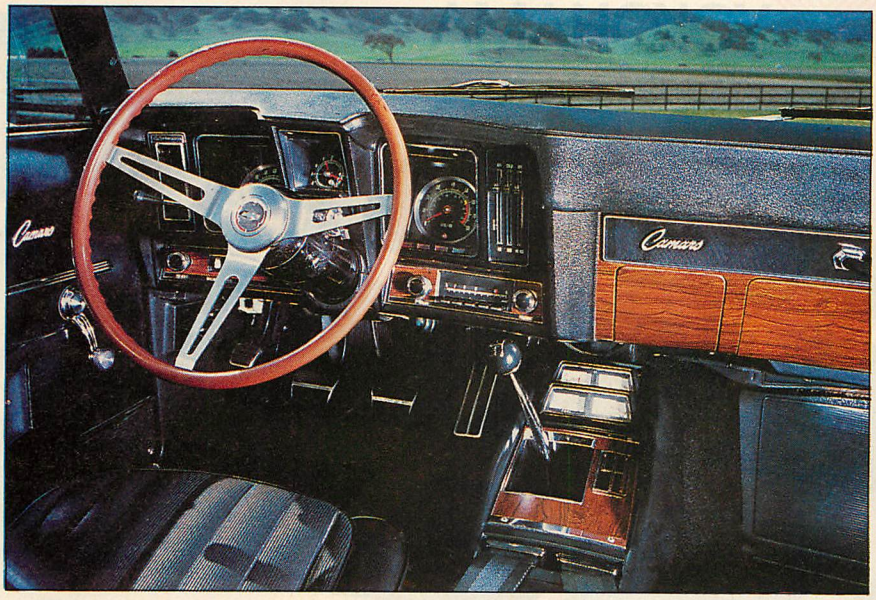
Penske and a representative from his sponsor, Sunoco Gasoline, visited Pete Estes' office soon afterward and convinced the Chevrolet executive to support the Trans-Am effort, even if it was necessary to do so covertly. Estes recognized the opportunity to create a performance image for Camaro, and since Mustangs would be in the series (with Ford Motor Company assistance), he wanted to make sure the Camaros had a fighting chance. Penske left the office that day with an agreement for technical and equipment support from Chevrolet.

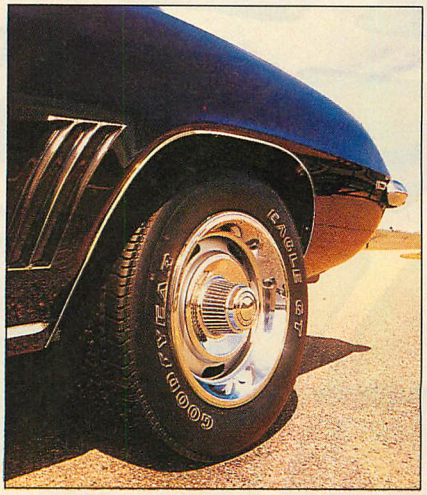
As it turned out, Chevrolet's level of support for Penske was far greater than merely a truckload of parts and some phone calls with the engineers. As time went on, the car manufacturer ponied up with new and improved components, test sessions at GM's proving grounds, computer analysis of vehicle dynamics, and even trackside telemetry for instantaneous data acquisition and evaluation. This was a serious effort.

The first Z28 rolled off the Norwood, Ohio, assembly line on Dec. 29, 1966, and went to Virginia to be prepped as Johnny Moore's ride in the upcoming Daytona Continental 24-hour race. Similar was the fate of the next 20 or so Z28s built, which ended up on racetracks across the country almost overnight. Roger Penske received the 12th Z28 on Jan. 10, 1967, and immediately began to tear it down. The engine went to Traco Engineering in Los Angeles for a 420-hp rebuild, while the car was shipped to Smokey Yunick's race shop in Daytona Beach for race prep.

If it seems like the average enthusiast was being left out of the mix, it was partially because Chevy didn't make it easy for anyone to actually order a Z28. Many dealers weren't even aware of the special-order cars, and others didn't care to know. In 1967, it took a lot of persistence, as well as $437 for the Z28 package and an additional $305 for the required 4-







speed and disc brakes to order the hot Camaro (on top of the $2726 base price). As a result, only 602 were produced. Overall, 220,906 Camaros were sold in 1967, compared to 443,000 Mustangs.

Nor was 1967 a good year for Penske and crew, as the cars' inherently poor brakes and excess weight left Chevy watching from the sidelines as Ford accepted the glory in the Trans-Am series. Even the Camaro's (illegally) acid-dipped bodies and the driving talent of Mark Donohue (who did win three races) couldn't make up the difference.

For 1968, Chevrolet stepped up action both in the showroom and on the racetrack. The production Z28 received more track-derived parts, such as (optional) 4-wheel disc brakes, which were quickly homologated and put to good use on the race cars. Chevy stepped up support for the Penske team by providing two prepared cars and 10 Traco race engines. The effort paid off with a series of wins that had the Ford team nervously huddling to determine what "unfair advantage" Chevrolet had come up with. By the end of the '68 season, Donohue had racked up an incredible 10 wins out of 13 races; the formerly dominating Mustangs won only two. The Z28 was at last a proven winner.

The year 1969 dawned on a slightly restyled Camaro that embodied many of the aerodynamic lessons learned on the track. The Z28 featured a lower front valance and larger rear spoiler, and a more tailored look to the body lines overall, but benefited performance-wise from the new Hurst shifter. *Hot Rod* magazine tested the Z28 in bracket racer trim (with 4.88 gears, traction bars, and slicks) and turned a fast quarter-mile time of 13.1 sec at nearly 107 mph. A lot of performance from a supposed 290-hp motor.

Penske and Donohue remained strong competitors in '69, running two all-new team cars. Suspension troubles caused problems early in the season, but the duo persevered to win eight of the 12 races and take the championship. In 1970, Chevrolet couldn't match the offer the team had received from AMC, and watched as Donohue raced his new Javelin. The short but sweet reign of the Trans-Am Camaros had ended.

Sales of production Z28s steadily increased in those early years, up to 7199 in 1968 and a whopping 19,014 in 1969. The '69 Z28 featured here is owned by Brian Weber of Santa Maria, California, and is one of approximately 200 produced with 4-wheel disc brakes. MT

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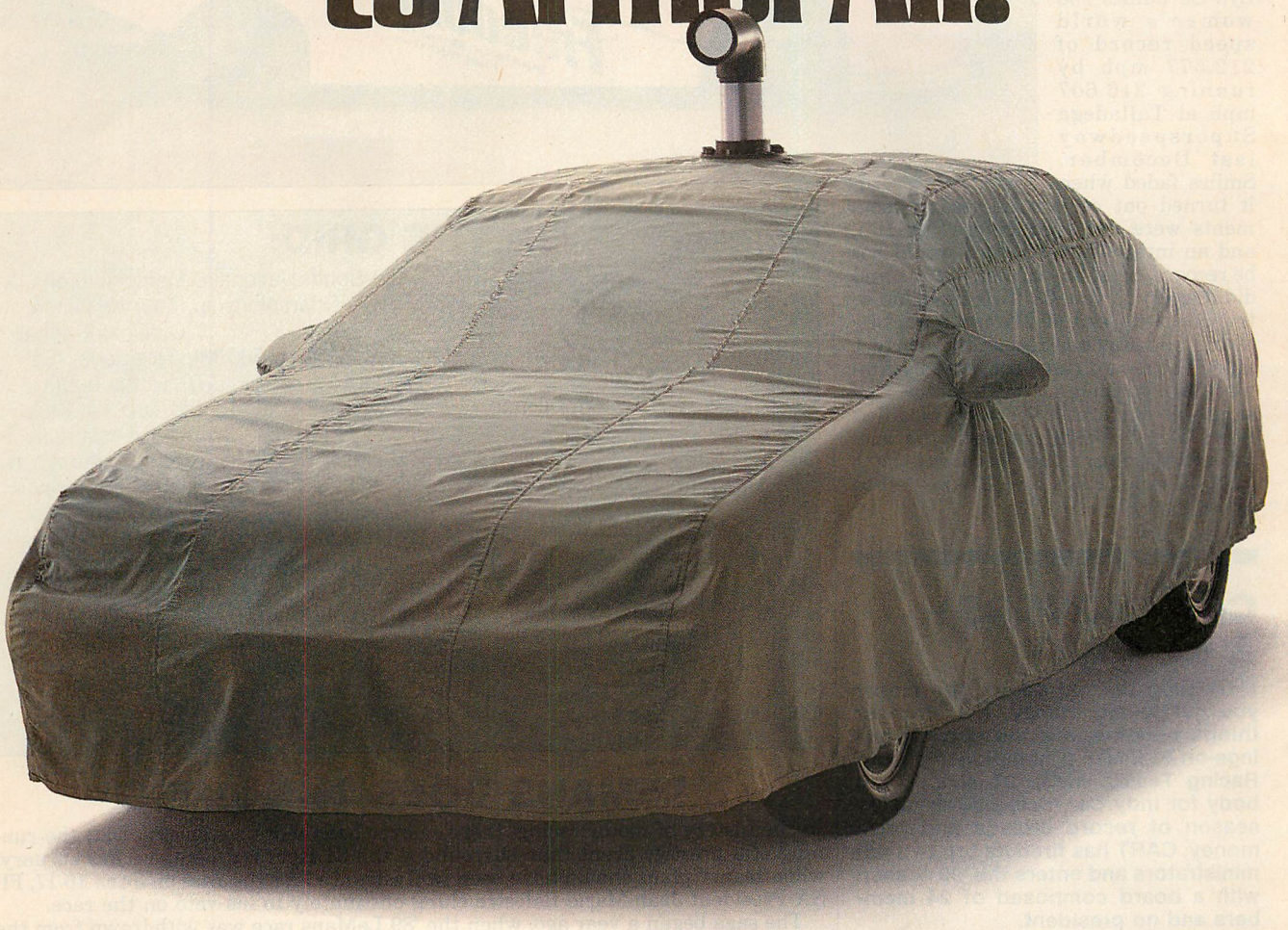

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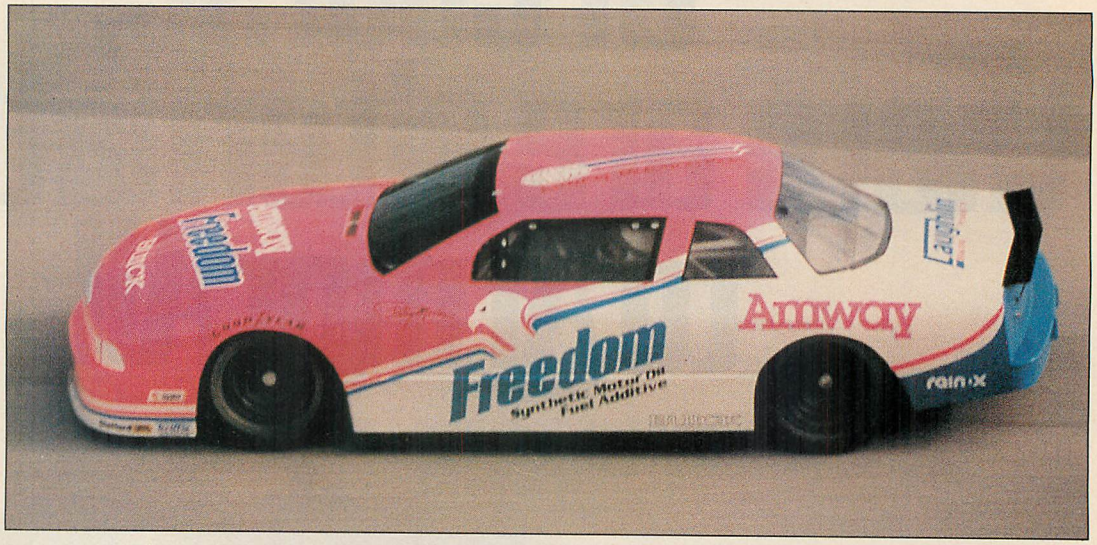
PATTY MOISE'S FLIP-SIDE RECORD



What's a person to do? Patty Moise, NASCAR Grand National stock-car driver, eclipsed Lyn St. James' '88 women's world speed record of 212.577 mph by running 216.607 mph at Talladega Superspeedway last December. Smiles faded when it turned out certain necessary documents were not filed before the run, and an international record would not be recognized; so she turned around and did it again on Jan. 23. This time, Moise turned in a speed of 217.498 mph, bettering her previous record by nearly 1 mph. The record run, sponsored by Amway Corporation and Buick Motor division, was made in a specially modified Buick Regal V-8. Along with the one-lap record, four other records—the 1 mile, 10 mile, 1 km, and 10 km—fell to Moise's credit.

CONTROVERSY A LA CART

Illustrating the old adage, the closer you get to big money, the stranger things become, are the current goings-on in CART (Championship Auto Racing Teams, Inc.), the sanctioning body for Indy Car racing. After an '89 season of record crowds and prize money, CART has fired its top two administrators and enters the '90 season with a board composed of 24 members and no president.

Chairman John Frasco and President John Caponigro were purged from positions of power after the '89 season, the former for alleged conflicts of interest, and the latter for "biting the hand that feeds you" by criticizing long-time CART sponsor PPG Industries. Former Alfa Romeo Indy Car team manager John Capels, now CART executive vice president and chief operating officer, will run the organization's day-to-day affairs until a new president is selected from among the more than 70 candidates being considered.

—Peter Frey

ON THE GRID:

May 3-6 .....NHRA, Mid-South Nationals, Memphis, Tenn.
May 4-10 .....FIA, World Rally Championship, Tour de Corse, Corsica, France
May 6.....NASCAR, Winston Cup, Winston 500(M), Talladega, Ala.
May 6 .....IMSA, Camel Grand Prix, GTP/Lights 300(K), Camel Grand Prix of Heartland Park, Topeka, Kan.
May 18-20 .....Mille Miglia, Brescia, Italy
May 18-20.....NHRA, Cajun Nationals, Baton Rouge, La.
May 19.....IMSA, GTO/GTU 250(K), Tampa International Raceway, Tampa, Fla.
May 20 .....FIA, World Sports Prototype Championship, Spa-Francorchamps, Belgium
May 27.....FIA, Monaco Grand Prix, Monte Carlo, Monaco
May 27 ....CART/USAC, PPG Cup, Indianapolis 500(M), Indianapolis Motor Speedway, Indianapolis, Ind.
May 27.....NASCAR, Winston Cup, Coca Cola 600(M), Charlotte, N.C.
May 27.....IMSA, Camel Grand Prix, GTP/Lights 150(L), Toyota Trucks Lime Rock Camel Grand Prix, Lime Rock, Conn.

LEMANS DOES THE LIMBO

In the history of motor racing, there's never been more confusion about the running of a prestige event than surrounded the 24 Hours of LeMans. In February, when teams' plans should have been well advanced for the race on June 16-17, FISA President Jean-Marie Balestre clung obstinately to his veto on the race.

The saga began a year ago, when the '89 LeMans race was withdrawn from the World Sports-Prototype Championship calendar. Grounds for the dispute between FISA and the organizing Automobile Club de l'Ouest were numerous, but primarily concerned television rights. The '89 race went ahead outside the world series and didn't suffer.

Through October and November, negotiations proceeded smoothly for this year's race, but in December, Balestre dropped his bombshell. The 8.3-mile track would need two chicanes on the main straight: a 3.5-mile chute where speeds of 240 mph are sustained by the fastest cars; and the FISA president clung to this position.

Before December was out, the ACO agreed to build the two chicanes, but Balestre moved the posts. The ACO would have to apologize for "defamation" of FISA, and this the ACO couldn't do. The defamatory words, accusing FISA of being run by a mafia, were uttered by the regional senator.

This incredible saga dragged on through January and early February, but an end was in sight when the ACO caved in and penned an apology. The organizers also confirmed that two chicanes would be installed on the main straightaway, and FISA responded that its preconditions had now been fulfilled. Meantime, the Aston Martin team was disbanded and Mazda withdrew from the World Championship, citing the LeMans troubles as the reason.

—Michael Cotton

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STRAIGHTAWAY

• **Anton H. (Tony) George** replaced the late **Joseph R. Cloutier** as president of the **Indianapolis Motor Speedway Corporation**. George is the grandson of the late Speedway owner Tony Hulman. Former President Cloutier succumbed to a heart attack last December.

• **Peugeot** kept its **Paris-Dakar Rally** crown this year with a stunning **1-2-3** finish. The first two finishers were identical 405 Turbo 16s. Peugeot will forego the 23-day race next year to focus its attention on the World Sports Car Championship series with a 3.5-liter engine that also meets F1 requirements.

• **Mazda** has taken a step up in commitment this year with its entry into the **IMSA GTO** lineup: a beefy, **4-rotor RX-7** designed by Lee Dykstra. The engine, built by MazdaSpeed, will be prepared and fielded by Jim Downing Racing. High-tech gear on the car includes a Lola black box system to download engine info to a trackside computer.

• **Al Unser returns to the Indy 500** this year in a Miller High Life, **Alfa Romeo-powered** March car for Patrick Racing. A victory would make Unser the first five-time Indy 500 winner. The Miller car also represents Alfa's first Indy return in 40 years.

• F1 team owner **Enzo Coloni**, in need of financial support, sold a chunk of his team to Subaru. The new team will be **racing a Subaru V-12 engine** currently under construction. Coloni, however, must find a way to attract key personnel who left when money was low.

• **CART**, governing body of the PPG Indy Car World Series, announced that **PPG Industries**, glass and paint supplier to the automotive industry, has agreed to **continue its sponsorship** through '92.

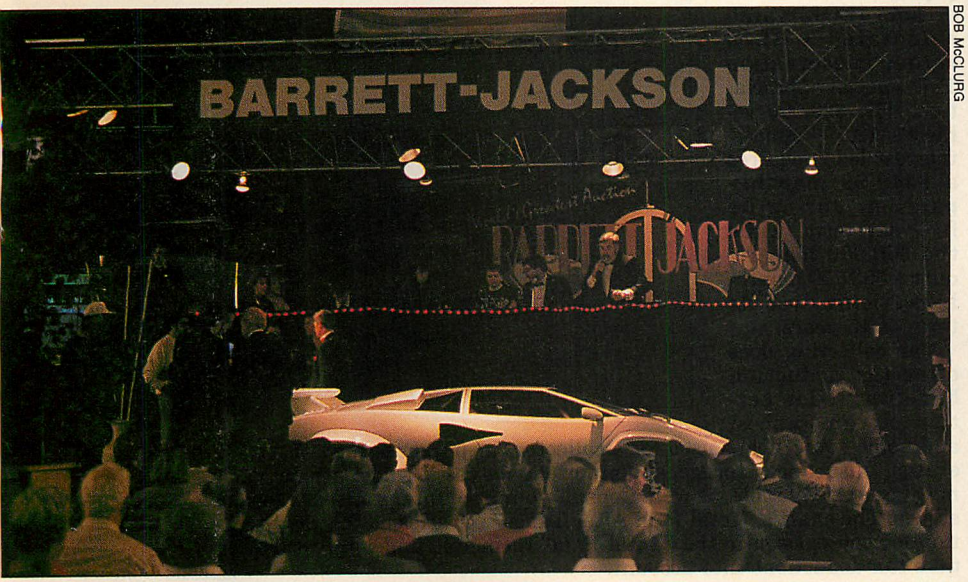
FASTEST HOUR ON TELEVISION

Saturday mornings will never be the same. Supplying more action than the Roadrunner and Wile E. Coyote, the new IMSA Grand Prix Hour takes viewers for an action-packed adventure every weekend at 11 a.m. The one-hour program, produced by Omni Teleproductions Corporation of Boston, premiered April 15 and has a 26-week run during 1990. Each show is produced in a docu-magazine format that presents great racing action mixed with driver profiles, racing history, and colorful features. A cooperative venture with IMSA, the Grand Prix Hour will showcase 15 races, including Road Atlanta, Road America, Sebring, and more.

SCATTER.

SOLD ON BARRETT-JACKSON AUCTION

Good timing and good fortune were keynotes of the expansive Barrett-Jackson collector car auction at the Horseworld polo complex in Scottsdale, Arizona, this year. Perhaps the single most important automotive event held for the auto investor and aficionado, the auction skirted the edges of an unseasonable rainstorm, opening to Arizona's famed winter weather and drawing a crowd estimated in excess of 50,000. More than 800 classic and collectible automobiles were up for sale.

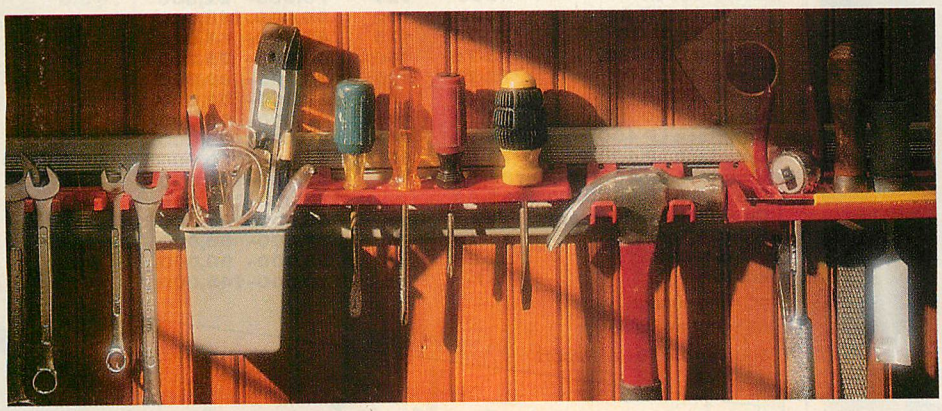


BOB McCLURG

The immensity of this auction is an experience for the uninitiated. Football field-size tents housed a vast array of pristine vehicles up for bid, while many other classics were on display outside. Virtually all automotive marques could be found somewhere on the grounds. The business end of the auction, also held within a huge tent, was filled with bidders, viewers, officials, and the curious. A bevy of tuxedoed auctioneers kept sales action non-stop. Ten large-screen monitors providing sales figures and bidding information in five international currencies could be found at key areas throughout the tent. And for those unable to attend, FNN broadcasted updates directly from the event.

Not unexpectedly, a new world record sale of $37 million worth of collector cars was established during the auction's four-day run. Individual vehicles also set at least 29 new world sales records, among them a '37 Bugatti Atalante Type 57 S Gangloff Coupe Body ($2 million), '32 Hispano-Suiza J-R convertible ($2 million), Hartman-bodied '37 V-16 Cadillac 90 convertible ($1.4 million), and a pair of '73 Ferrari Daytonas ($2.3 million).

BRAIN.



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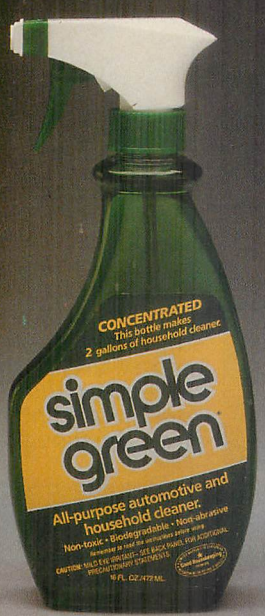

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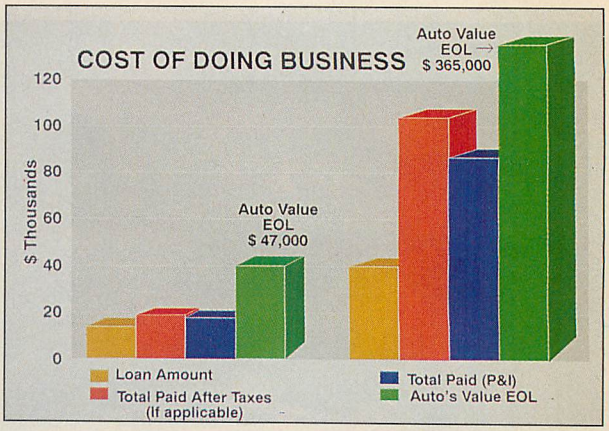
INVESTMENTS

PROJECTED PERFORMANCE

What will a collector car investment look like some years down the road? Obviously, that's as hard to predict as the performance of any stock, commodity, or other investment. Collectible automobiles have proven to be excellent investments, though, and many experts expect this trend to continue. Here's a quick look at the projected performance of $20,000 and $50,000 investment quality automobiles, considering a 25% down payment and an end of loan (EOL) value calculated with a rather conservative 12% annual appreciation. The $20,000 vehicle's 12.5% simple-interest loan requires a $449.96 monthly payment during its five-year term, while the $50,000 loan requires $631.59 monthly servicing over its term of 15 years.



Car collecting does offer tax deduction benefits under certain circumstances, and home equity loans used for a collector car purchase may also offer tax consideration. Insurance, storage, and maintenance costs, which are not calculated here, may be tax-deductible, as well. Consult your accountant or tax attorney for specific advice. The chart's "Total Paid After Taxes" bar uses a 30% tax bracket computation for comparison to the "Total Paid" (principle and interest) bar that does not take tax deductions into account.

—Lazelle Jones

STATE OF THE LAMBORGHINI MARKET

Model	Year(s)	Total Prod.	Market Prices ($)	Monthly Change (%)	YTD %
350GT	'64-66	143	165,000–190,000	4.4	+91.8
400GT 2+2	'66-68	244	125,000–170,000	5.3	+71.0
Miura P400	'66-69	465	180,000–230,000	nc	+64.0
Miura P400 S	'69-71	138	230,000–300,000	nc	+58.2
Miura P400 SV	'71-72	126	335,000–400,000	nc	+28.9
Espada	'68-78	1223	50,000– 62,500	4.6	+18.4
Islero 400GT	1968	129	70,000– 82,500	+3.3	+27.0
Islero 400GT S	1969	102	90,000–110,000	nc	+37.9
Jarama 400GT	'70-73	175	47,500– 65,000	+7.1	+28.5
Jarama 400GT S	'73-76	150	60,000– 75,000	+8.0	+38.4
Urraco P250	'72-77	525	30,000– 40,000	nc	+40.0
Urraco P200	'75-77	66	27,500– 35,000	nc	+47.0
Urraco P300	'75-79	198	42,500– 55,000	+11.4	+50.0
Countach LP 400	'74-78	149	135,000–175,000	+5.0	+63.1
Countach LP 400 S	'78-82	466	140,000–170,000	+6.8	+87.8
Countach LP 5000 S	'82-85	323	145,000–190,000	+3.0	+97.0
Countach LP 5000 QV	'85-88	na	175,000–215,000	+4.0	+90.2
Countach Anniversary	'89	na	345,000–425,000	nc	+ 2.6
Silhouette	'76-78	52	37,500– 50,000	+12.9	+31.2
Jalpa P 350	'82-88	na	50,000– 90,000	nc	+61.8
LM002	'87-	na	110,000–145,000	nc	+13.3

nc = no change
na = not available

Source: *The Tower Report*

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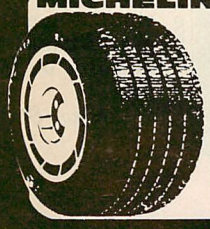

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245/60SR15	79.00	265/50SR15	101.00
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195/60HR14	83.00	215/60HR14	101.00
215/60HR14	94.00	215/65HR15	105.00
195/60HR15	87.00	235/60HR15	111.00
205/60HR15	88.00	255/60HR15	118.00
215/60HR15	91.00		

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205/50HR15	81.00	215/60HR14	87.00
265/50HR15	121.00	235/60HR15	93.00
295/50HR15	139.00	255/60HR15	103.00
		215/65HR15	96.00

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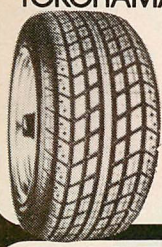
205/60VR15	119.00	225/50VR15	180.00
215/60VR15	125.00	245/50VR15	195.00
225/60VR15	141.00	245/50VR16	173.00
235/60VR15	145.00	255/50VR16	182.00
195/50VR15	125.00	205/55VR16	148.00

YOKOHAMA



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185/60HR14	62.00	225/60HR15	83.00
225/60HR14	82.00	235/60HR15	84.00
195/60HR15	74.00		

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205/55ZR16	177.00	255/50ZR16	189.00
225/50ZR16	181.00		

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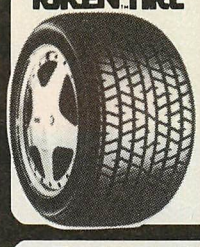
205/60VR13	89.00	205/50ZR15	145.00
185/60VR14	85.00	205/55ZR16	173.00
195/60VR14	95.00	225/50ZR16	177.00
225/60VR15	122.00	255/50ZR16	185.00
195/50ZR15	123.00	215/45ZR17	178.00

RIKEN TIRE



GR-301

185/60HR13	51.00
205/60HR13	57.00
185/60HR14	53.00
195/60HR14	55.00
205/60HR14	61.00
215/60HR14	63.00
225/60HR14	65.00
P235/60HR14	67.00
P245/60HR14	69.00
195/60HR15	63.00
205/60HR15	65.00
215/60HR15	67.00
P225/60HR15	68.00
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P245/60HR15	74.00
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GR-501

P215/50VR13	87.00
P245/50VR14	124.00
195/50VR15	93.00
205/50VR15	110.00
225/50VR15	125.00
205/50VR16	134.00
205/55VR16	137.00
225/50VR16	140.00
P245/50VR16	151.00
P255/50VR16	156.00

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P235/60HR15	84.00
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185/65HR15	73.00
195/65HR15	76.00
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215/65HR15	79.00

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205/50ZR15	138.00
225/50ZR15	157.00
205/55ZR16	151.00
225/50ZR16	160.00
245/50ZR16	171.00
255/50ZR16	176.00
245/45ZR16	165.00
235/45ZR17	174.00

PIRELLI

P6

185/60HR13	77.00	215/60HR15	124.00	205/55VR14	142.00	205/55VR16	176.00
185/60HR14	79.00	205/60HR14	106.00	195/50VR15	121.00	225/50VR16	193.00
195/60HR14	91.00	215/60VR15	143.00	205/50VR15	141.00	195/50VR16	153.00
195/60HR15	96.00	185/65HR15	86.00	225/50VR15	178.00	265/50VR16	225.00
205/60HR15	105.00	195/65VR15	114.00				

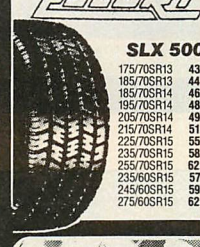
P7

P600

185/60HR14	86.00	205/60VR15	129.00	195/50VR15	128.00	215/55VR16	198.00
195/60HR14	95.00	205/65VR15	138.00	205/50VR15	163.00	225/45VR16	203.00
195/60HR15	102.00	215/60HR15	115.00	225/50VR15	182.00	225/50VR16	196.00
225/60VR15	171.00	225/60VR15	171.00	255/45VR15	196.00	245/45VR16	213.00
205/55VR14	114.00	225/60ZR15	171.00	205/50VR16	193.00	215/45ZR17	225.00
205/55VR15	133.00	235/60VR15	179.00	205/55VR16	186.00	235/45ZR17	235.00

P700

ESCORT



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185/70SR14	46.00
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205/70SR14	49.00
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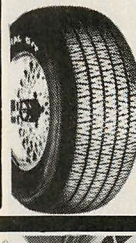
245/60SR15	59.00
275/60SR15	62.00



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P195/60R-14	58.00	P185/70SR-13	46.00
P215/60R-14	66.00	P195/70SR-13	48.00
P225/60R-14	68.00	P185/70SR-14	48.00
P195/60R-15	62.00	P195/70SR-14	50.00
P205/60R-15	64.00	P205/70SR-14	52.00
P215/60R-15	66.00	P215/70SR-14	54.00
P225/60R-15	68.00	P225/70SR-14	56.00
P235/60R-15	71.00	P215/70SR-15	57.00
P195/50R-15	73.00	P225/70SR-15	59.00
P205/50R-15	80.00	P235/70SR-15	61.00
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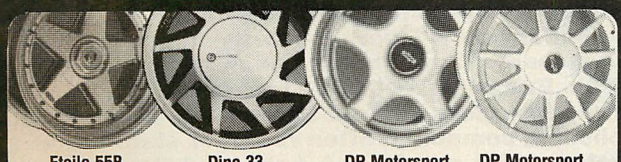

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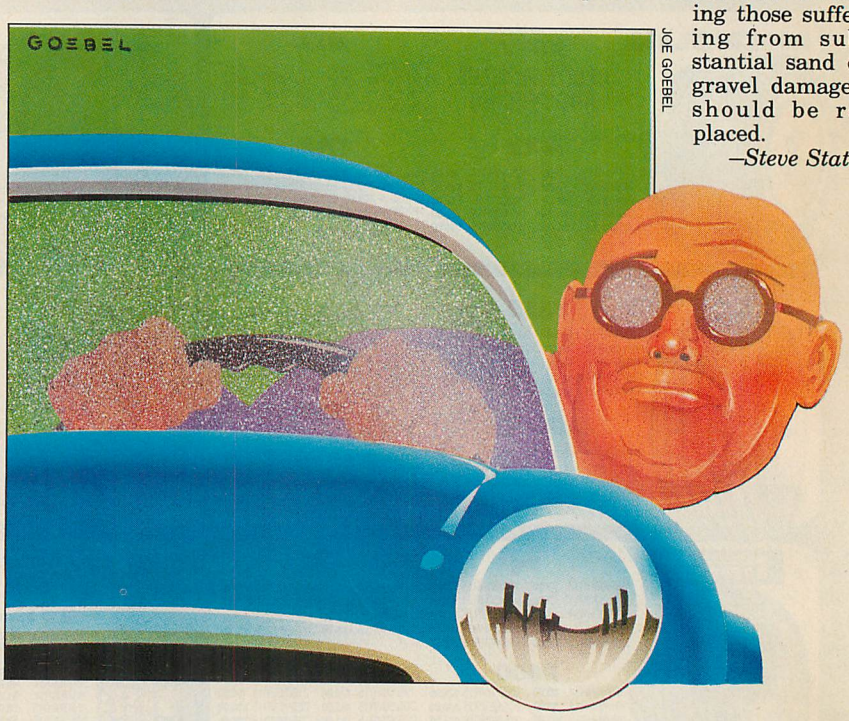
CAR CARE

A CLEAR OUTLOOK

Fully one quarter of all cars on the highway suffer from windshields impaired by pits, chips, and hazing, reports the Automotive Information Council (AIC). In fact, the problem is so widespread that 1% of all vehicles on the highway should have their windshields replaced. Short of that, here are some quick and inexpensive steps you can take to remedy the "windshield blues":

Begin by cleaning the windshield and checking its condition (an ammonia-based cleaner works well for cutting through road film). You can sometimes buff out light scratches or nicks with jeweler's rouge, available at glass shops or jewelry stores, or with a do-it-yourself kit available from suppliers like the Eastwood Company (215/640-1450). Automotive glass shops will also buff out light scratches for a nominal charge; deeper scratches are likely to be permanent. Minor stone chips and small breaks can sometimes be remedied if confined to the outer layer of glass. These are repaired with resin injected into the flaw to fill and seal the imperfection. Although do-it-yourself kits are available, most recommend having a professional handle this job. Badly cracked or pitted windshields—including those suffering from substantial sand or gravel damage—should be replaced.

—Steve Stater



JOE GOEBEL

VISION: ACCOMPLISHED

Straining to see through a fog-shrouded rain-streaked windshield is no fun. As you might have guessed, a number of products are available to make your job of seeing the light easier. Among these are Rain-X (602/991-7272), a wipe-on liquid developed to coat windscreens on jet fighters to keep them clean and clear. Under less demanding ground-level driving conditions, this product coats a car windshield with an optically transparent polymer "shield" to disperse rain, sleet, and snow. Other help-you-see items include anti-fog cloths, larger versions of those used by snow skiers to keep goggles clear, and specialty glass cleaners like Window Sheen by the Wax Shop (805/397-5274). Extra-fine (0000) steel wool can also be used to polish window glass without scratching. When all else fails, a mild polishing compound often removes stubborn alkaline or hard-water stains on glass. A final tip: Silicone sprays like WD-40 quickly remove adhesives left by window stickers and decals.

CAR CARE

CARING FOR WINDOW TINT

Window tint is a popular addition in many cars, especially in areas where blazing summer sun can fry an egg on your dash, as well as fade interior upholstery into relative obscurity. Like the rest of your car, film tint lasts longer with periodic care. Its worst enemy is grime, which builds up and scrapes across the film every time a window is raised or lowered. Keeping the window clean helps prevent this. Tint experts advise washing the film with a solution of 1-oz biodegradable dishwashing detergent dissolved in a 20-oz spray bottle of distilled water. (White-, pink-, or green-colored dish detergents often contain oils and lotions that build up and cloud the tint.) After application, clean the window with a soft, pliable squeegee. Stubborn spots can be removed by carefully rubbing with a soft cotton cloth. John Pinkerton of Gila River Products, an aftermarket supplier of window tint, offers the following additional suggestions to keep tinted windows in top shape.

–T.A. Sunderland

TINT TIPS

- Be extra careful with cola drinks inside your car. These will quickly deteriorate tint.
- Never use ammonia-based cleaners on window tint.
- Don't use paper towels to clean windows, since wood fibers can scratch the film. A cotton cloth works best.
- Wash the windows often if you smoke or use hairspray inside the car. Added buildup hastens deterioration.
- Consider washing your own windows instead of having them done at the car wash. You'll be gentler on the tint.
- Use a silicone-based vinyl protectant like Clear Guard to aid scratch resistance and enhance ultra-violet inhibiting qualities.
- Be careful when releasing seatbelts. Some belts retract quickly, striking the window and damaging tint on the way.
- Too-tight window rollers wear tracks into the film. Keep windows clean to minimize wear, and adjust rollers if needed.

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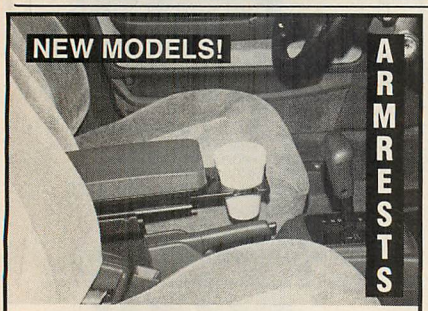

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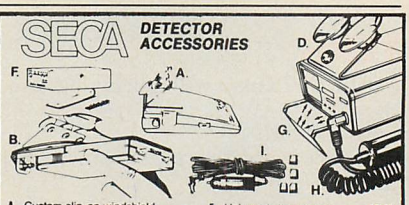

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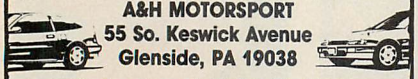

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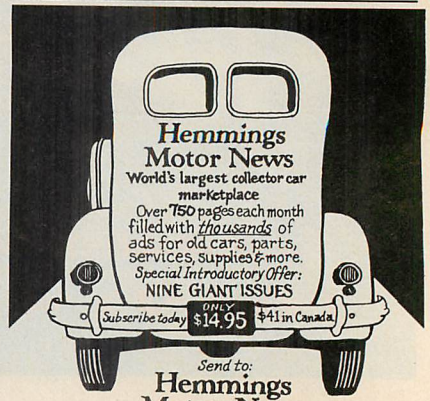

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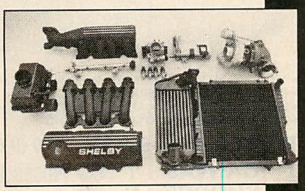

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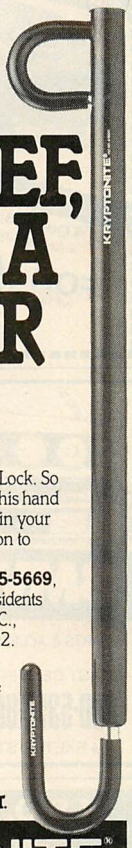

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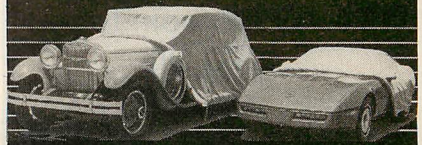

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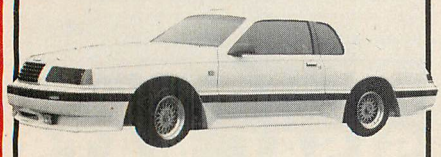

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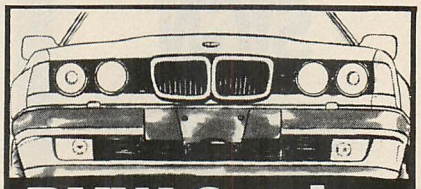

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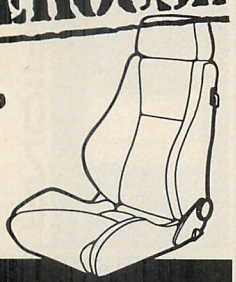

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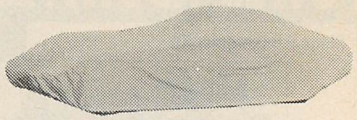

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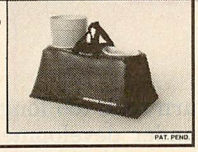
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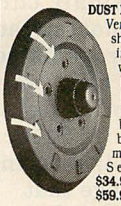

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STREETWISE

BY MARYANN N. KELLER

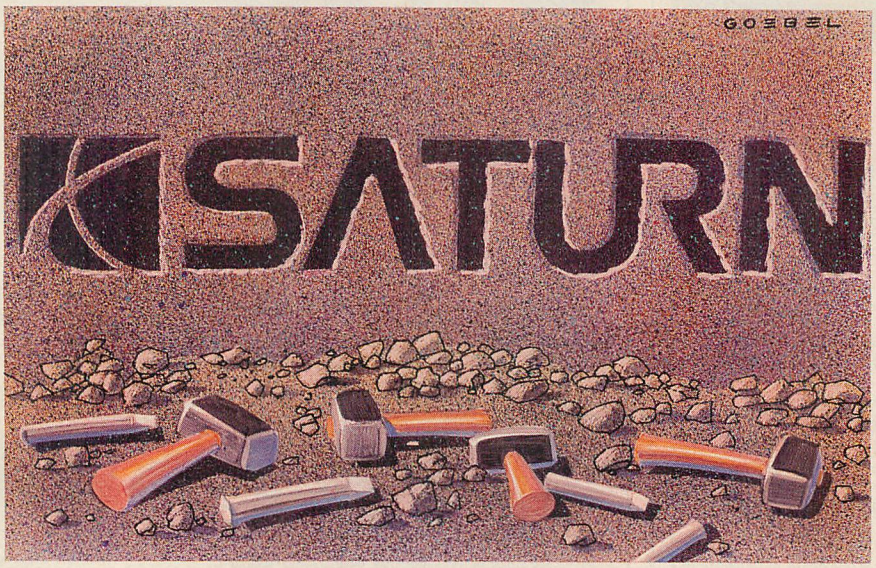
SATURN: THE EXPERIMENT, THE COMPANY, THE CAR

Within a few months, consumers will be treated to their first look at the Saturn 2- and 4-door cars. The project has been under tight security, so not too much leaked out about the Saturn models. When spy photos were published late in 1989, General Motors offered a $30,000 reward for information that identified the source of the leak.

What we do know about Saturn suggests to us that it will fulfill its mandate as the best small car ever produced by General Motors, but it will miss in terms of the company's other goal—to make money on a small car. In the past, General Motors always argued that small cars were not attractive products because they were unprofitable to produce. Saturn is not likely going to change that.

For GM, Saturn has been more than a car: It's been an experiment in workplace management. Instead of the bureaucratic style of the rest of General Motors, where each department functions autonomously from the others, Saturn has embraced teamwork among all departments. In addition, Saturn marks the first time the people who actually assemble the car have had a voice in its design, in the development of the assembly system, and in the selection of suppliers and dealers. It's hoped the idea of sharing responsibility has resulted in the solution of problems as they emerge rather than when the car is laid up for repairs.

Saturn won't be the $6000, 45-mpg wonder car GM promised when it unveiled the project. Early indications are that Saturn will sell for between $10,000 and $12,000, which would put it in direct competition with popular models like the Honda Civic and Toyota Corolla, and have fuel economy of around 30 mpg. Saturn hopes to get 80% of its customers from non-GM car owners, which seems a bit ambitious. But at the estimated prices, assuming there aren't too many add-ons and $10,000 buys a reasonably well-equipped model, we'd bet that Saturn will sell an estimated '91 production of about 100,000 cars. Apart from the fact that GM is determined to have a marketing success and is therefore unlikely to make the mistake of pricing the cars too high, Saturn is important to GM in terms of the company meeting government-mandated fuel-economy standards. At present, federal law requires each auto maker to produce cars that provide 27.5 mpg over the company's entire range. That's become more difficult as consumers have favored large cars with bigger engines in this environment of cheap energy. Failure to meet that goal would result in enormous penalties of $100 million or more for GM each year. With the government poised to tighten the fuel economy standards, furthering the success of Saturn has become even more crucial to the company.



JOE GOEBEL

FOR GM, SATURN HAS BEEN MORE THAN A CAR: IT'S BEEN AN EXPERIMENT IN WORKPLACE MANAGEMENT

What consumers are not likely to see in Saturn advertising is any mention of the fact that Saturn is part of General Motors. GM has a poor image as a producer of small cars. The company has professed repeatedly that its aim was to build import-fighters with the Vega, Chevette, and Cavalier, yet it never succeeded in doing so—perhaps until now. But earlier efforts have so soured import car owners that blatant references to GM could prevent them from even giving the cars a chance.

Although Saturn took too long to create (it's been under development since 1982), cost too much (investment is estimated at $3 billion), and probably will not achieve the 80% conquest rate among non-GM car owners, we think the cars will have a number of things going for them that will certainly sell out first-year production, namely, the right price, a good dealer network dedicated to customer service, and the normal curiosity that comes with the launch of a brand-new car. But after the first year, word of mouth about the cars will determine whether Saturn fulfills its sales goal of 250,000 units a year by 1995. MT

Fact: GM is rated as having the best-built American car by owners in the latest J.D. Power Initial Quality Survey.

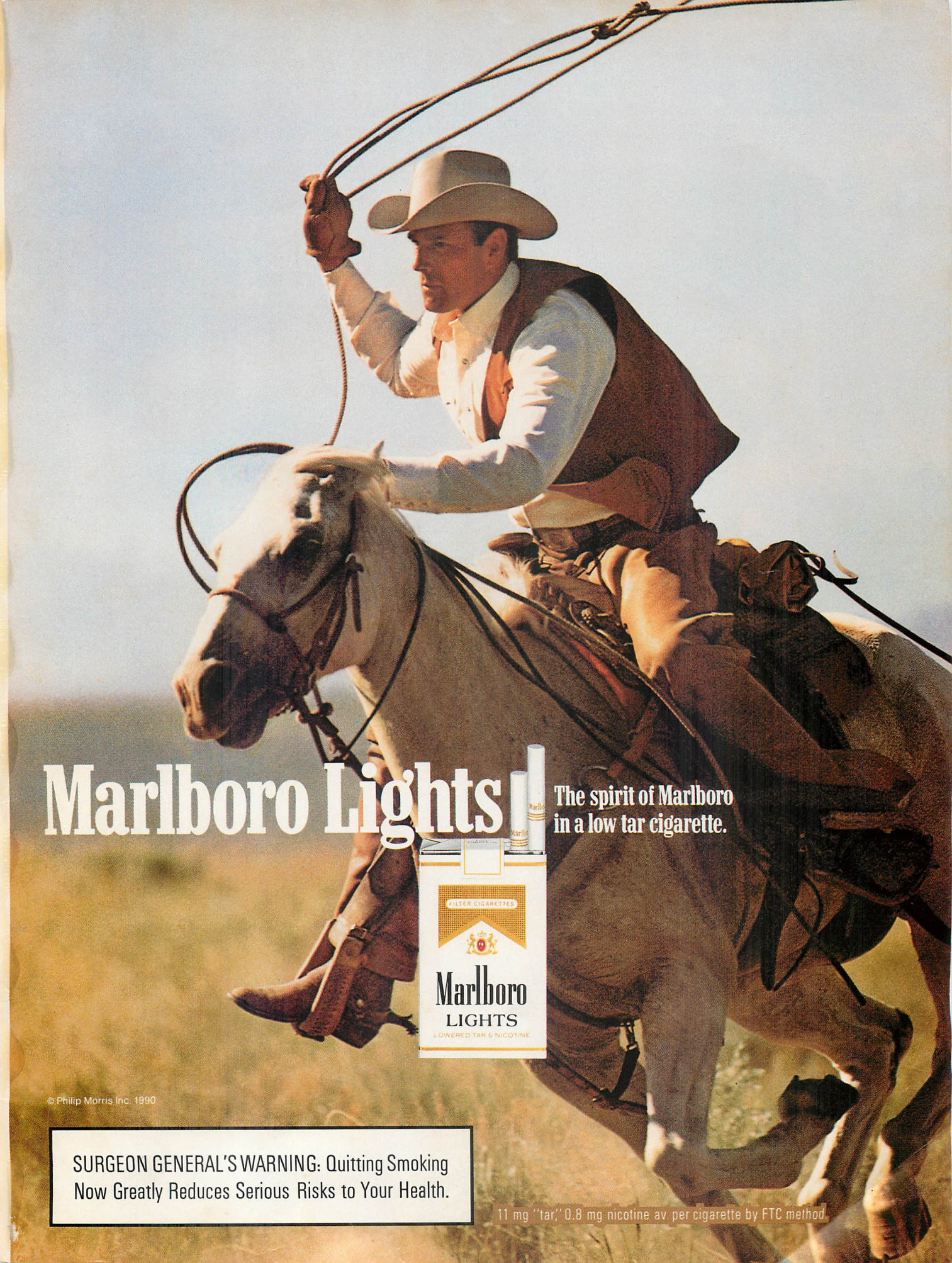
All of GM going all out for you.

GM

MARK OF EXCELLENCE

1990 Buick LeSabre

Chevrolet, Pontiac, Oldsmobile, Buick, Cadillac, GMC Truck



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SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.

11 mg "tar," 0.8 mg nicotine av per cigarette by FTC method.